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Consultants and Engineers
Geo-Tech & Road Materials Testing Laboratory)

#B9-003, GANGA, Jnanabharathi Enclave,
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Ph: 9448853634, 8762194386.
Email: sapiencebangalore@gmail.com

Aggregate Impact Value

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore.
Mix Type	Wet Mix Macadam
Material	Coarse Aggregates
Test Method	IS : 2386 (Part - IV) 1963
Source / Location	Plant
Sample No.	1
Date	02.06.2022

Sl. No.	Details	Test No.		Average Aggregate Impact Value
		1	2	
1	Weight of Empty Cylinder (in gms) W1	1967	1967	20.50%
2	Weight of cylinder filled with sample (in gms) W2	2467	2492	
3	Weight of Sample (in gms) = (W2 - W1) W3	500	525	
4	Weight of Sample passing through 2.36mm IS sieve after impact (in gms) W4	105	106	
5	Weight of Sample retained in 2.36mm IS sieve after impact (in gms) W5	395	419	
6	Aggregate Impact Value in Percentage	21.00%	20.00%	

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Comments:
→ Maximum allowable Aggregate Impact value for Bituminous Concrete is 30% (MORTH table no.500.16)

For Sapience Consultants and Engineers,

SAPIENCE CONSULTANTS & ENGINEERS Bangalore-59

Authorized Signature

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರು
ಶೆಟ್ಟಿಹಳ್ಳಿ ಉಪವಿಭಾಗ
ಬಿಬಿಎಂಪಿ, ಬೆಂಗಳೂರು

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Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore.
Mix Type	Wet Mix Macadam
Material	Coarse Aggregates
Test Method	IS : 2386 (Part - IV) 1963
Source / Location	Plant
Sample No.	2
Date	02.06.2022

Sl. No.	Details	Test No.		Average Aggregate Impact Value
		3	4	
1	Weight of Empty Cylinder (in gms) W1	1967	1967	20.00%
2	Weight of cylinder filled with sample (in gms) W2	2485	2492	
3	Weight of Sample (in gms) = (W2 - W1) W3	518	525	
4	Weight of Sample passing through 2.36mm IS sieve after impact (in gms) W4	105	105	
5	Weight of Sample retained in 2.36mm IS sieve after impact (in gms) W5	413	420	
6	Aggregate Impact Value in Percentage	20.00%	20.00%	

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For Sapience Consultants and Engineers,

SAPIENCE CONSULTANTS & ENGINEERS Bangalore-56

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Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore.
Mix Type	Wet Mix Macadam
Material	Coarse Aggregates
Test Method	IS : 2386 (Part - IV) 1963
Source / Location	Plant
Sample No.	3
Date	02.06.2022

Sl. No.	Details	Test No.		Average Aggregate Impact Value
		5	6	
1	Weight of Empty Cylinder (in gms) W1	1967	1967	
2	Weight of cylinder filled with sample (in gms) W2	2495	2475	
3	Weight of Sample (in gms) = (W2 - W1) W3	528	508	
4	Weight of Sample passing through 2.36mm IS sieve after impact (in gms) W4	110	105	21.00%
5	Weight of Sample retained in 2.36mm IS sieve after impact (in gms) W5	418	403	
6	Aggregate Impact Value in Percentage	21.00%	21.00%	

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Aggregate Impact Value

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Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore.
Mix Type	Wet Mix Macadam
Material	Coarse Aggregates
Test Method	IS : 2386 (Part - IV) 1963
Source / Location	Plant
Sample No.	4
Date	03.06.2022

Sl. No.	Details	Test No.		Average Aggregate Impact Value
		7	8	
1	Weight of Empty Cylinder (in gms) W1	1967	1967	21.50%
2	Weight of cylinder filled with sample (in gms) W2	2478	2488	
3	Weight of Sample (in gms) = (W2 - W1) W3	511	521	
4	Weight of Sample passing through 2.36mm IS sieve after impact (in gms) W4	111	111	
5	Weight of Sample retained in 2.36mm IS sieve after impact (in gms) W5	400	410	
6	Aggregate Impact Value in Percentage	22.00%	21.00%	

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For Sapience Consultants and Engineers,

SAPIENCE CONSULTANTS ENGINEERS BANGALORE-59

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Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore.
Mix Type	Wet Mix Macadam
Material	Coarse Aggregates
Test Method	IS : 2386 (Part - IV) 1963
Source / Location	Plant
Sample No.	5
Date	03.06.2022

Sl. No.	Details	Test No.		Average Aggregate Impact Value
		9	10	
1	Weight of Empty Cylinder (in gms) W1	1967	1967	20.50%
2	Weight of cylinder filled with sample (in gms) W2	2495	2490	
3	Weight of Sample (in gms) = (W2 - W1) W3	528	523	
4	Weight of Sample passing through 2.36mm IS sieve after impact (in gms) W4	111	107	
5	Weight of Sample retained in 2.36mm IS sieve after impact (in gms) W5	417	416	
6	Aggregate Impact Value in Percentage	21.00%	20.00%	

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Aggregate Impact Value

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Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore.
Mix Type	Wet Mix Macadam
Material	Coarse Aggregates
Test Method	IS : 2386 (Part - IV) 1963
Source / Location	Plant
Sample No.	6
Date	03.06.2022

Sl. No.	Details	Test No. 11	Test No. 12	Average Aggregate Impact Value
1	Weight of Empty Cylinder (in gms) W1	1967	1967	
2	Weight of cylinder filled with sample (in gms) W2	2473	2479	
3	Weight of Sample (in gms) = (W2 - W1) W3	506	512	
4	Weight of Sample passing through 2.36mm IS sieve after impact (in gms) W4	110	110	21.50%
5	Weight of Sample retained in 2.36mm IS sieve after impact (in gms) W5	396	402	
6	Aggregate Impact Value in Percentage	22.00%	21.00%	

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Aggregate Particle Shape

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore.
Mix Type	Wet Mix Macadam
Material	Coarse Aggregates
Test Method	IS 2386(Part I) 1963 (RA 2011)
Source / Location	Plant
Sample No.	1,2 & 3
Date	03.06.2022

Sl. No.	Test	1	2	3	Requirements as per MORTH 5th edition table no 500.16
1	Flakiness Index	12.70	12.80	12.30	Maximum allowable Combined Flakiness and Elongation Indices for Dense Graded Bituminous Macadam is 35% as per Table 500.8 MORTH Specification.
2	Elongation Index	14.10	13.60	13.00	
3	Combined Flakiness & Elongation index	26.80	26.40	25.30	

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Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore.
Mix Type	Wet Mix Macadam
Material	Coarse Aggregates
Test Method	IS 2386(Part I) 1963 (RA 2011)
Source / Location	Plant
Sample No.	4,5 & 6
Date	03.06.2022

Sl. No.	Test	4	5	6	Requirements as per MORTH 5th edition table no 500.16
1	Flakiness Index	14.90	14.10	12.50	Maximum allowable Combined Flakiness and Elongation Indices for Dense Graded Bituminous Macadam is 35% as per Table 500.8 MORTH Specification.
2	Elongation Index	12.80	12.30	12.30	
3	Combined Flakiness & Elongation index	27.70	26.40	24.80	

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Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore.
Mix Type	Wet Mix Macadam
Material	Coarse Aggregates
Test Method	IS 2386(Part 1) 1963 (RA 2011)
Source / Location	Plant
Sample No.	1 & 2
Date	15.06.2022

Total Weight of Sample (gms) : **15000.00**

Sieve Size (mm)	Weight Retained in gms	Cumulative Weight Retained (gm)	Cummulative % Retained	Cumulative % Passing	Requirement as per MORTH table 500.17	Remarks
53	0	0	0	100	100	Gradation satisfies the MORTH Table 400-13 Specification for Wet Mix Macadam
45	648.0	648.0	4.32	95.68	95 - 100	
22.4	3418.6	4066.6	27.11	72.89	60 - 80	
11.2	3233.0	7299.6	48.66	51.34	40 - 60	
4.75	3461.7	10761.3	71.74	28.26	25 - 40	
2.36	955.7	11717.0	78.11	21.89	15 - 30	
0.60	1060.2	12777.2	85.18	14.82	8 - 22	
0.075	1866.5	14643.7	97.62	2.38	0 - 5	

Total Weight of Sample (gms) : **15000.00**

Sieve Size (mm)	Weight Retained in gms	Cumulative Weight Retained (gm)	Cummulative % Retained	Cumulative % Passing	Requirement as per MORTH table 500.17	Remarks
53	0	0	0	100	100	Gradation satisfies the MORTH Table 400-13 Specification for Wet Mix Macadam
45	713.4	713.4	4.76	95.24	95 - 100	
22.4	3802.9	4516.3	30.11	69.89	60 - 80	
11.2	2841.8	7358.1	49.05	50.95	40 - 60	
4.75	2719.1	10077.2	67.18	32.82	25 - 40	
2.36	1661.1	11738.3	78.26	21.74	15 - 30	
0.60	1256.7	12995.0	86.63	13.37	8 - 22	
0.075	1835.6	14830.6	98.87	1.13	0 - 5	

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Mix Type	Wet Mix Macadam
Material	Coarse Aggregates
Test Method	IS 2386(Part 1) 1963 (RA 2011)
Source / Location	Plant
Sample No.	3 & 4
Date	16.06.2022

Total Weight of Sample (gms) : **15000.00**

Sieve Size (mm)	Weight Retained in gms	Cumulative Weight Retained (gm)	Cummulative % Retained	Cumulative % Passing	Requirement as per MORTH table 500.17	Remarks
53	0	0	0	100	100	Gradation satisfies the MORTH Table 400-13 Specification for Wet Mix Macadam
45	453.0	453.0	3.02	96.98	95 - 100	
22.4	3730.7	4183.7	27.89	72.11	60 - 80	
11.2	3590.2	7773.9	51.83	48.17	40 - 60	
4.75	2094.5	9868.4	65.79	34.21	25 - 40	
2.36	2130.3	11998.7	79.99	20.01	15 - 30	
0.60	755.2	12753.9	85.03	14.97	8 - 22	
0.075	1916.3	14670.2	97.80	2.2	0 - 5	

Total Weight of Sample (gms) : **15000.00**

Sieve Size (mm)	Weight Retained in gms	Cumulative Weight Retained (gm)	Cummulative % Retained	Cumulative % Passing	Requirement as per MORTH table 500.17	Remarks
53	0	0	0	100	100	Gradation satisfies the MORTH Table 400-13 Specification for Wet Mix Macadam
45	530.6	530.6	3.54	96.46	95 - 100	
22.4	4271.2	4801.8	32.01	67.99	60 - 80	
11.2	2448.8	7250.6	48.34	51.66	40 - 60	
4.75	3464.0	10714.6	71.43	28.57	25 - 40	
2.36	895.3	11609.9	77.40	22.60	15 - 30	
0.60	1121.9	12731.8	84.88	15.12	8 - 22	
0.075	1900.1	14631.9	97.55	2.45	0 - 5	

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Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore.
Mix Type	Wet Mix Macadam
Material	Coarse Aggregates
Test Method	IS 2386(Part 1) 1963 (RA 2011)
Source / Location	Plant
Sample No.	5 & 6
Date	17.06.2022

Total Weight of Sample (gms) : **15000.00**

Sieve Size (mm)	Weight Retained in gms	Cumulative Weight Retained (gm)	Cummulative % Retained	Cumulative % Passing	Requirement as per MORTH table 500.17	Remarks
53	0	0	0	100	100	Gradation satisfies the MORTH Table 400-13 Specification for Wet Mix Macadam
45	467.1	467.1	3.11	96.89	95 - 100	
22.4	3928.5	4395.6	29.30	70.7	60 - 80	
11.2	2770.6	7166.2	47.77	52.23	40 - 60	
4.75	2956.0	10122.2	67.48	32.52	25 - 40	
2.36	2160.9	12283.1	81.89	18.11	15 - 30	
0.60	515.2	12798.3	85.32	14.68	8 - 22	
0.075	1991.4	14789.7	98.60	1.4	0 - 5	

Total Weight of Sample (gms) : **15000.00**

Sieve Size (mm)	Weight Retained in gms	Cumulative Weight Retained (gm)	Cummulative % Retained	Cumulative % Passing	Requirement as per MORTH table 500.17	Remarks
53	0	0	0	100	100	Gradation satisfies the MORTH Table 400-13 Specification for Wet Mix Macadam
45	368.2	368.2	2.45	97.55	95 - 100	
22.4	3808.4	4176.6	27.84	72.16	60 - 80	
11.2	3883.4	8060.0	53.73	46.27	40 - 60	
4.75	2527.2	10587.2	70.58	29.42	25 - 40	
2.36	1339.2	11926.4	79.51	20.49	15 - 30	
0.60	839.5	12765.9	85.11	14.89	8 - 22	
0.075	1814.9	14580.8	97.21	2.79	0 - 5	

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For Sapience Consultants and Engineers,

Authorized Signature

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Ph: 9448853634, 8762194386.
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Aggregate Gradation

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore.
Mix Type	Wet Mix Macadam
Material	Coarse Aggregates
Test Method	IS 2386(Part 1) 1963 (RA 2011)
Source / Location	Plant
Sample No.	7 & 8
Date	21.06.2022

Total Weight of Sample (gms) : **15000.00**

Sieve Size (mm)	Weight Retained in gms	Cumulative Weight Retained (gm)	Cummulative % Retained	Cumulative % Passing	Requirement as per MORTH table 500.17	Remarks
53	0	0	0	100	100	Gradation satisfies the MORTH Table 400-13 Specification for Wet Mix Macadam
45	594.3	594.3	3.96	96.04	95 - 100	
22.4	4206.7	4801.0	32.01	67.99	60 - 80	
11.2	2846.5	7647.5	50.98	49.02	40 - 60	
4.75	2968.4	10615.9	70.77	29.23	25 - 40	
2.36	620.1	11236.0	74.91	25.09	15 - 30	
0.60	1314.2	12550.2	83.67	16.33	8 - 22	
0.075	2133.9	14684.1	97.89	2.11	0 - 5	

Total Weight of Sample (gms) : **15000.00**

Sieve Size (mm)	Weight Retained in gms	Cumulative Weight Retained (gm)	Cummulative % Retained	Cumulative % Passing	Requirement as per MORTH table 500.17	Remarks
53	0	0	0	100	100	Gradation satisfies the MORTH Table 400-13 Specification for Wet Mix Macadam
45	377.1	377.1	2.51	97.49	95 - 100	
22.4	4580.9	4958.0	33.05	66.95	60 - 80	
11.2	2209.4	7167.4	47.78	52.22	40 - 60	
4.75	2697.5	9864.9	65.77	34.23	25 - 40	
2.36	1814.7	11679.6	77.86	22.14	15 - 30	
0.60	820.2	12499.8	83.33	16.67	8 - 22	
0.075	2254.8	14754.6	98.36	1.64	0 - 5	

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For Sapience Consultants and Engineers,

Authorized Signature

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Ph: 9448853634, 8762194386.
Email: sapiencebangalore@gmail.com

Aggregate Gradation

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore.
Mix Type	Wet Mix Macadam
Material	Coarse Aggregates
Test Method	IS 2386(Part 1) 1963 (RA 2011)
Source / Location	Plant
Sample No.	9 & 10
Date	22.06.2022

Total Weight of Sample (gms) : **15000.00**

Sieve Size (mm)	Weight Retained in gms	Cumulative Weight Retained (gm)	Cummulative % Retained	Cumulative % Passing	Requirement as per MORTH table 500.17	Remarks
53	0	0	0	100	100	Gradation satisfies the MORTH Table 400-13 Specification for Wet Mix Macadam
45	321.6	321.6	2.14	97.86	95 - 100	
22.4	4115.9	4437.5	29.58	70.42	60 - 80	
11.2	3213.9	7651.4	51.01	48.99	40 - 60	
4.75	2125.0	9776.4	65.18	34.82	25 - 40	
2.36	2122.2	11898.6	79.32	20.68	15 - 30	
0.60	1020.7	12919.3	86.13	13.87	8 - 22	
0.075	1680.0	14599.3	97.33	2.67	0 - 5	

Total Weight of Sample (gms) : **15000.00**

Sieve Size (mm)	Weight Retained in gms	Cumulative Weight Retained (gm)	Cummulative % Retained	Cumulative % Passing	Requirement as per MORTH table 500.17	Remarks
53	0	0	0	100	100	Gradation satisfies the MORTH Table 400-13 Specification for Wet Mix Macadam
45	485.1	485.1	3.23	96.77	95 - 100	
22.4	3698.1	4183.2	27.89	72.11	60 - 80	
11.2	3230.3	7413.5	49.42	50.58	40 - 60	
4.75	2428.6	9842.1	65.61	34.39	25 - 40	
2.36	2026.4	11868.5	79.12	20.88	15 - 30	
0.60	647.2	12515.7	83.44	16.56	8 - 22	
0.075	2198.0	14713.7	98.09	1.91	0 - 5	

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For Sapience Consultants and Engineers,

Authorized Signature

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Aggregate Gradation

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore.
Mix Type	Wet Mix Macadam
Material	Coarse Aggregates
Test Method	IS 2386(Part 1) 1963 (RA 2011)
Source / Location	Plant
Sample No.	11 & 12
Date	23.06.2022

Total Weight of Sample (gms) : **15000.00**

Sieve Size (mm)	Weight Retained in gms	Cumulative Weight Retained (gm)	Cummulative % Retained	Cumulative % Passing	Requirement as per MORTH table 500.17	Remarks
53	0	0	0	100	100	Gradation satisfies the MORTH Table 400-13 Specification for Wet Mix Macadam
45	621.2	621.2	4.14	95.86	95 - 100	
22.4	3710.1	4331.3	28.88	71.12	60 - 80	
11.2	3124.3	7455.6	49.70	50.3	40 - 60	
4.75	2784.2	10239.8	68.27	31.73	25 - 40	
2.36	1430.3	11670.1	77.80	22.2	15 - 30	
0.60	936.2	12606.3	84.04	15.96	8 - 22	
0.075	2014.0	14620.3	97.47	2.53	0 - 5	

Total Weight of Sample (gms) : **15000.00**

Sieve Size (mm)	Weight Retained in gms	Cumulative Weight Retained (gm)	Cummulative % Retained	Cumulative % Passing	Requirement as per MORTH table 500.17	Remarks
53	0	0	0	100	100	Gradation satisfies the MORTH Table 400-13 Specification for Wet Mix Macadam
45	577.8	577.8	3.85	96.15	95 - 100	
22.4	3689.5	4267.3	28.45	71.55	60 - 80	
11.2	3444.9	7712.2	51.41	48.59	40 - 60	
4.75	1930.6	9642.8	64.29	35.71	25 - 40	
2.36	1915.5	11558.3	77.06	22.94	15 - 30	
0.60	1170.6	12728.9	84.86	15.14	8 - 22	
0.075	1977.1	14706.0	98.04	1.96	0 - 5	

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For Sapience Consultants and Engineers,

Authorized Signature

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Atterberg Limits

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore.
Mix Type	Wet Mix Macadam
Material	Coarse Aggregates
Test Method	IS 2720(Part 5):1985
Source / Location	Plant
Sample No.	1, 2 and 3
Date	15.06.2022 to 16.06.2022

Sl. No	Description	Test #1	Test #2	Test #3	IS Specifications
1	Liquid Limit, %	22.46	21.7	22.36	-
2	Plasticity Index, %	Non Plastic	Non Plastic	Non Plastic	6.0% Maximum.

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ಜೆಜ್ಜಕ್ಕ ಉಪವಿಭಾಗ
ಬಿಬಿಎಂಪಿ, ಬೆಂಗಳೂರು

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Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore.
Mix Type	Wet Mix Macadam
Material	Coarse Aggregates
Test Method	IS 2720(Part 5):1985
Source / Location	Plant
Sample No.	4, 5 and 6
Date	16.06.2022 to 17.06.2022

Sl. No	Description	Test #4	Test #5	Test #6	IS Specifications
1	Liquid Limit, %	21.99	22.54	21.99	-
2	Plasticity Index, %	Non Plastic	Non Plastic	Non Plastic	6.0% Maximum.

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Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore.
Mix Type	Wet Mix Macadam
Material	Coarse Aggregates
Test Method	IS 2720(Part 5):1985
Source / Location	Plant
Sample No.	7, 8 and 9
Date	21.06.2022 to 22.06.2022

Sl. No	Description	Test #7	Test #8	Test #9	IS Specifications
1	Liquid Limit, %	21.54	21.4	21.23	-
2	Plasticity Index, %	Non Plastic	Non Plastic	Non Plastic	6.0% Maximum.

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Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore.
Mix Type	Wet Mix Macadam
Material	Coarse Aggregates
Test Method	IS 2720(Part 5):1985
Source / Location	Plant
Sample No.	10, 11 and 12
Date	22.06.2022 to 23.06.2022

Sl. No	Description	Test #10	Test #11	Test #12	IS Specifications
1	Liquid Limit, %	21.19	21.65	21.57	-
2	Plasticity Index, %	Non Plastic	Non Plastic	Non Plastic	6.0% Maximum.

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Project Management and Consultancy Services

Summary of Frequencies of Field and Laboratory Tests Conducted

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Mix Type	Dense Bituminous Macadam

Sl. No.	Test Details	Quantity in m^3	Frequency of Tests	Tests Required	Tests Carried Out
1	Quality of Binder	157.09	1 Test / Lot	1	1
2	Aggregate Stripping Value		1 Test / Supply	1	1
3	Specific Gravity and Water Absorption of Aggregates		1 Test / Supply	1	1
4	Aggregate Impact Value		1 Test /200 m^3	1	1
5	Combined Flakiness and Elongation Indices		1 Test / 200 m^3	1	1
6	Aggregate Gradation		2 Test / Day	4	4
7	Marshal Stability of the Mix		2 Tests / Day	4	4
8	Rate of Spread of Tack Coat		2 Tests / Day	4	4
9	Binder Content and Mix Gradation		2 Test / Day	4	4
10	Control of Temperature		Regular Intervals	-	-

Contractor / Agency

Assistant Engineer

Sapience Consultants and Engineers,

Assistant Executive Engineer

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Quality of Binder

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Mix Type	Dense Bituminous Concrete
Material	VG-30 grade Bitumen
Source / Location	Plant
Date	11.07.2022

The results of the tests conducted on the bitumen sample using for VG-30 Bitumen

Sl. No	Description	Test #1	Test #2	Requirement as per IS:73:2013
1	Penetration at 25 °C, 1/10 mm	63	61	50 - 70
2	Softening point, °C	57.1	55.7	> 47
3	Specific Gravity	1.1	1.2	Min 0.97
4	Ductility at 25°C, cm	96	97	> 40
5	Flash Point, °C	325	316	> 220

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Aggregate Stripping Value

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Mix Type	Dense Bituminous Macadam
Material	VG-30 grade Bitumen
Test Method	IS : 6241 - 1974 & Specification for Road & Bridge Works, MORTH, Revision - V
Type of binder	VG-30 grade Bitumen
% of Binder Used	4.50 % by weight
Weight of Aggregate	500 gms
Weight of Binder	22.50 gms
Water Bath Temp.	40^0 C
Source / Location	Plant
Sample No.	1
Date	11.07.2022

Observation No	Stripping Percentage	Average Percentage	Average Retained Coating (%)
1	3.96	3.77	96.62
2	3.57		
3	3.77		

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Comments: Minimum Allowable Aggregate Stripping Value for Bituminous Concrete is 95%

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Specific Gravity and Water Absorption

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Mix Type	Dense Bituminous Macadam
Material	Coarse Aggregates
Test Method	IS 2386(Part 3):1963
Source / Location	Plant
Sample No.	1
Date	11.07.2022 to 12.07.2022

Sl. No.	Description	Notion	Test #1	Test #2	Test #3	Mean Value
1	Weight of aggregate suspended in water with the basket	W_1 g	2019	2022	2022	
2	Weight of basket suspended in water	W_2 g	755	755	755	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1264	1267	1267	
4	Weight of saturated surface dry aggregate in air	W_3 g	2011	2013	2014	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_s)$ g	747	746	747	
6	Weight of oven dried aggregate	W_4 g	1996	2002	2002	
7	Specific Gravity	$W_4/(W_3-W_s)$	2.672	2.684	2.680	2.68
8	Apparent Specific Gravity	$W_4/(W_4-W_s)$	2.727	2.724	2.724	2.72
9	Water Absorption	$((W_3 - W_4) * 100)/W_4$	0.75%	0.55%	0.60%	0.63%

Note:

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→ Maximum allowable Aggregate Water absorption value for Dense Bituminous Macadam is 2.0%
(MORTH table 500.16)

For Sapience Consultants and Engineers,

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Email: sapienceb angalore@gmail.com

Aggregate Impact Value

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Mix Type	Dense Bituminous Macadam
Material	Coarse Aggregates
Test Method	IS : 2386 (Part - IV) 1963
Source / Location	Plant
Sample No.	1
Date	12.07.2022

Sl. No.	Details	Test No. 1	Test No. 2	Average Aggregate Impact Value
1	Weight of Empty Cylinder (in gms) W1	868	868	
2	Weight of cylinder filled with sample (in gms) W2	1167	1161	
3	Weight of Sample (in gms) = (W2 - W1) W3	299	293	
4	Weight of Sample passing through 2.36mm IS sieve after impact (in gms) W4	53	59	19.00%
5	Weight of Sample retained in 2.36mm IS sieve after impact (in gms) W5	246	234	
6	Aggregate Impact Value in Percentage	18.00%	20.00%	

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→ Maximum allowable Aggregate Impact value for Bituminous Concrete is 27% (MORTH table no.500.16)

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Aggregate Particle Shape

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Mix Type	Dense Bituminous Macadam
Material	Coarse Aggregates
Test Method	IS 2386(Part 1) 1963 (RA 2011)
Source / Location	Plant
Sample No.	1, 2 and 3
Date	12.07.2022

Sl. No.	Test	1	2	3	Requirements as per MORTH 5th edition table no 500.16
1	Flakiness Index	11.00	10.40	10.00	Maximum allowable Combined Flakiness and Elongation Indices for Dense Graded Bituminous Macadam is 35% as per Table 500.8 MORTH Specification.
2	Elongation Index	10.30	12.00	9.30	
3	Combined Flakiness & Elongation index	21.30	22.40	19.30	

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Aggregate Gradation

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Mix Type	Dense Bituminous Macadam
Material	Coarse Aggregates
Test Method	IS 2386(Part 1) 1963 (RA 2011)
Source / Location	Plant
Sample No.	1 & 2
Date	18.07.2022

Total Weight of Sample (gms) : **10000.00**

Sieve Size (mm)	Weight Retained in gms	Cumulative Weight Retained (gm)	Cummulative % Retained	Cumulative % Passing	Requirement as per MORTH table 500.17	Remarks
37.50	0	0	0	100	100	Gradation satisfies the MORTH Grade-II Specification for Dense Bituminous Macadam
26.50	279.3	279.3	2.79	97.21	95 - 100	
19.00	2704.4	2983.7	29.84	70.16	60 - 80	
13.20	1760.9	4744.6	47.45	52.55	40 - 60	
4.75	1652.1	6396.7	63.97	36.03	25 - 40	
2.36	1392.1	7788.8	77.89	22.11	15 - 30	
0.300	490.5	8279.3	82.79	17.21	8 - 22	
0.075	1502.5	9781.8	97.82	2.18	0 - 5	

Total Weight of Sample (gms) : **10000.00**

Sieve Size (mm)	Weight Retained in gms	Cumulative Weight Retained (gm)	Cummulative % Retained	Cumulative % Passing	Requirement as per MORTH table 500.17	Remarks
37.50	0	0	0	100	100	Gradation satisfies the MORTH Grade-II Specification for Dense Bituminous Macadam
26.50	465.2	465.2	4.65	95.35	95 - 100	
19.00	2234.2	2699.4	26.99	73.01	60 - 80	
13.20	2046.7	4746.1	47.46	52.54	40 - 60	
4.75	1497.3	6243.4	62.43	37.57	25 - 40	
2.36	1684.1	7927.5	79.28	20.72	15 - 30	
0.300	773.4	8700.9	87.01	12.99	8 - 22	
0.075	1041.9	9742.8	97.43	2.57	0 - 5	

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Authorized Signature

Executive Engineer,

R I - Dasarahalli Division,

Bruhat Bengalore Mahanagara Palike

Quality Control Reports

(THIRD and PART)

Name of the Package:

Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore

AGENCY: Sri.Chikkaboregowda Karigowda

Estimate Cost: 1800.00 Lakhs

Project Management Consultants:

SAPIENCE CONSULTANTS AND ENGINEERS, BANGALORE.

#B9-003, GANGA, Jnanabharathi Enclave, Valagerahalli, Mysore Road Bangalore 560056

Ph: 080-29523634; E-Mail: SAPIENCEBANGALORE@GMAIL.COM

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Test Report on Fine Aggregates (Sand)

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Material	Sand
Test Method	IS 383-1970 (RA- 2002)
Sampel Supplied By	PMC Agency
Date of Testing	03.06.2022

Total weight of Aggregates in gms: 1000

Is Sieve Size in mm	Weight Retained on Sieve (gm)	Percentage of Weight Retained (%)	Percentage of Weight Passing (%)	Cumulative Percentage Passing (%)	Spec.Limits For Zone-II
10.00	0	0	0	100	100.00
4.75	41.1	4.11	4.11	95.89	90-100
2.36	192.6	19.26	23.37	76.63	75-100
1.18	78.1	7.81	31.18	68.82	55-90
600 Micron	274.1	27.41	58.59	41.41	35-59
300 Micron	205.1	20.51	79.1	20.90	8-30
150 Micron	145.1	14.51	93.61	6.39	0-10

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Test Report on Aggregates

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Material	20mm Aggregates
Test Method	IS 383-1970 (RA- 2002)
Sampel Supplied By	PMC Agency
Date of Testing	03.06.2022

Total weight of Aggregates in gms: 5000

Is Sieve Size in mm	Weight Retained on Sieve (gm)	Percentage of Weight Retained (%)	Percentage of Weight Passing (%)	Cumulative Percentage Passing (%)	Spec.Limits
40	0	0	0	100	100
20	204.9	4.098	4.098	95.90	95-100
10	3264.9	65.298	69.396	30.60	25-55
4.75	1423.3	28.466	97.862	2.14	0-10

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Test Report on Aggregates

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor,Mysore
Material	40mm Aggregates
Test Method	IS 383-1970 (RA- 2002)
Sampel Supplied By	PMC Agency
Date of Testing	03.06.2022

Total weight of Aggregates in gms: 5000

Is Sieve Size in mm	Weight Retained on Sieve (gm)	Percentage of Weight Retained (%)	Percentage of Weight Passing (%)	Cumulative Percentage Passing (%)	Spec.Limits
80.00	0	0	0	100	100.00
40.00	240.3	4.81	4.81	95.19	95-100
20.00	2268.2	45.36	50.17	49.83	30-70
10.00	1315.9	26.32	76.49	23.51	10-35
4.75	1043.2	20.86	97.35	2.65	0-5

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Test Report on Compressive Strength of Concrete Cubes

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Sample ID	Concrete Cube
Size of Cubes	150mm x 150mm x 150mm
Cross Sectional Area	22500 mm^2
Test Method	IS: 269:2015
Grade of Concrete	**M - 20**
Compressive Strength	7th Day

Sl. No.	Date of Casting	Date of Tesing	Weight of Cube (Kg)	Failure Load (KN)	Compressive Strength (N/mm2)
1	8-Jun-22	15-Jun-22	8.166	338.18	15.03
2	8-Jun-22	15-Jun-22	8.136	344.03	15.29
3	8-Jun-22	15-Jun-22	8.127	338.85	15.06

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Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Sample ID	Concrete Cube
Size of Cubes	150mm x 150mm x 150mm
Cross Sectional Area	22500 mm^2
Test Method	IS: 269:2015
Grade of Concrete	**M - 20**
Compressive Strength	**28**th Day

Sl. No.	Date of Casting	Date of Tesing	Weight of Cube (Kg)	Failure Load (KN)	Compressive Strength (N/mm2)
1	8-Jun-22	6-Jul-22	8.136	514.80	22.88
2	8-Jun-22	6-Jul-22	8.154	518.85	23.06
3	8-Jun-22	6-Jul-22	8.165	522.68	23.23

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Test Report on Compressive Strength of Concrete Cubes

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Sample ID	Concrete Cube
Size of Cubes	150mm x 150mm x 150mm
Cross Sectional Area	22500 mm^2
Test Method	IS: 269:2015
Grade of Concrete	**M - 20**
Compressive Strength	**7th** Day

Sl. No.	Date of Casting	Date of Tesing	Weight of Cube (Kg)	Failure Load (KN)	Compressive Strength (N/mm2)
1	8-Jun-22	15-Jun-22	8.146	333.68	14.83
2	8-Jun-22	15-Jun-22	8.157	335.03	14.89
3	8-Jun-22	15-Jun-22	8.140	336.15	14.94

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Test Report on Compressive Strength of Concrete Cubes

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Sample ID	Concrete Cube
Size of Cubes	150mm x 150mm x 150mm
Cross Sectional Area	22500 mm^2
Test Method	IS: 269:2015
Grade of Concrete	**M - 20**
Compressive Strength	**28th** Day

Sl. No.	Date of Casting	Date of Tesing	Weight of Cube (Kg)	Failure Load (KN)	Compressive Strength (N/mm2)
1	8-Jun-22	6-Jul-22	8.145	514.80	22.88
2	8-Jun-22	6-Jul-22	8.143	524.03	23.29
3	8-Jun-22	6-Jul-22	8.144	510.08	22.67

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Test Report on Compressive Strength of Concrete Cubes

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Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Sample ID	Concrete Cube
Size of Cubes	150mm x 150mm x 150mm
Cross Sectional Area	22500 mm^2
Test Method	IS: 269:2015
Grade of Concrete	**M - 20**
Compressive Strength	7th Day

Sl. No.	Date of Casting	Date of Tesing	Weight of Cube (Kg)	Failure Load (KN)	Compressive Strength (N/mm2)
1	10-Jun-22	17-Jun-22	8.161	342.68	15.23
2	10-Jun-22	17-Jun-22	8.131	332.55	14.78
3	10-Jun-22	17-Jun-22	8.160	337.28	14.99

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Test Report on Compressive Strength of Concrete Cubes

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Sample ID	Concrete Cube
Size of Cubes	150mm x 150mm x 150mm
Cross Sectional Area	22500 mm^2
Test Method	IS: 269:2015
Grade of Concrete	**M - 20**
Compressive Strength	**28th** Day

Sl. No.	Date of Casting	Date of Tesing	Weight of Cube (Kg)	Failure Load (KN)	Compressive Strength (N/mm2)
1	10-Jun-22	8-Jul-22	8.147	524.70	23.32
2	10-Jun-22	8-Jul-22	8.141	523.35	23.26
3	10-Jun-22	8-Jul-22	8.175	520.65	23.14

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ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಶೆಟ್ಟಿಹಳ್ಳಿ ಉಪವಿಭಾಗ
ಬಿಬಿಎಂಪಿ, ಬೆಂಗಳೂರು

sapience
Consultants and Engineers
(Building, Geo-Tech & Road Materials Testing Laboratory)

#B9-003, GANGA, Jnanabharathi Enclave,
Valagerahalli, Mysore Road, Bangalore 560059
Ph: 9448853634, 8762194386.
Email: sapiencebangalore@gmail.com

Test Report on Compressive Strength of Concrete Cubes

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Sample ID	Concrete Cube
Size of Cubes	150mm x 150mm x 150mm
Cross Sectional Area	22500 mm^2
Test Method	IS: 269:2015
Grade of Concrete	**M - 20**
Compressive Strength	**7th** Day

Sl. No.	Date of Casting	Date of Tesing	Weight of Cube (Kg)	Failure Load (KN)	Compressive Strength (N/mm2)
1	10-Jun-22	17-Jun-22	8.138	335.48	14.91
2	10-Jun-22	17-Jun-22	8.124	336.60	14.96
3	10-Jun-22	17-Jun-22	8.147	342.45	15.22

Note:

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For Sapience Consultants and Engineers,

SAPIENCE CONSULTANTS & ENGINEERS Bangalore-57

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Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Sample ID	Concrete Cube
Size of Cubes	150mm x 150mm x 150mm
Cross Sectional Area	22500 mm^2
Test Method	IS: 269:2015
Grade of Concrete	**M - 20**
Compressive Strength	**28th** Day

Sl. No.	Date of Casting	Date of Tesing	Weight of Cube (Kg)	Failure Load (KN)	Compressive Strength (N/mm2)
1	10-Jun-22	8-Jul-22	8.161	524.70	23.32
2	10-Jun-22	8-Jul-22	8.147	512.10	22.76
3	10-Jun-22	8-Jul-22	8.152	521.55	23.18

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PRECAST SLAB 100mm Thick(CORE) TEST REPORT

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
type of Samples	100mm Pre-Cast Slab Cores (50mm dia)
Test Method	IS:516-1959 (Reaffirmed 1999), SP-24:1983.
Grade of Core	**M - 20**
Date of Testing	17.06.2022

Sl. No.	Dia of Core D (mm)	Height of Core H (mm)	Core Wt (Kg)	Density of Core (kg / m^3)	H / D	Correction factor (Based on H/D)	Failure Load (kN)	Core Strength (N/mm^2)	Correction Factor for the Dia. (Strength of the Core x 1.08)	Corrected Cylinder Compressive Strength (N/mm^2)	Equivalent Cube Compressive Strength (N/mm^2)
1	50	80.00	0.365	2323.66	1.60	0.957	32.12	16.36	17.67	16.90	21.13
2	50	85.00	0.363	2174.99	1.70	0.968	32.21	16.40	17.72	17.14	21.43
3	50	80.00	0.377	2400.06	1.60	0.957	32.36	16.48	17.80	17.03	21.29

Sl. No.	Dia of Core D (mm)	Height of Core H (mm)	Core Wt (Kg)	Density of Core (kg / m^3)	H / D	Correction factor (Based on H/D)	Failure Load (kN)	Core Strength (N/mm^2)	Correction Factor for the Dia. (Strength of the Core x 1.08)	Corrected Cylinder Compressive Strength (N/mm^2)	Equivalent Cube Compressive Strength (N/mm^2)
1	50	80.00	0.372	2368.23	1.60	0.957	32.59	16.60	17.93	17.15	21.44
2	50	85.00	0.379	2270.86	1.70	0.968	32.15	16.37	17.68	17.11	21.39
3	50	80.00	0.375	2387.32	1.60	0.957	32.87	16.74	18.08	17.30	21.62

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PRECAST SLAB 230mm Thick(CORE) TEST REPORT

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
type of Samples	230mm Pre-Cast Slab Cores (50mm dia)
Test Method	IS:516-1959 (Reaffirmed 1999), SP-24:1983.
Grade of Core	**M - 20**
Date of Testing	17.06.2022

Sl. No.	Dia of Core D (mm)	Height of Core H (mm)	Core Wt (Kg)	Density of Core (kg / m^3)	H / D	Correction factor (Based on H/D)	Failure Load (kN)	Core Strength (N/mm^2)	Correction Factor for the Dia. (Strength of the Core x 1.08)	Corrected Cylinder Compressive Strength (N/mm^2)	Equivalent Cube Compressive Strength (N/mm^2)
1	50	80.00	0.377	2400.06	1.60	0.957	32.79	16.70	18.04	17.26	21.57
2	50	85.00	0.379	2270.86	1.70	0.968	32.25	16.42	17.74	17.16	21.46
3	50	80.00	0.372	2368.23	1.60	0.957	32.84	16.73	18.06	17.28	21.60

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Test Report on Compressive Strength of Concrete Cubes

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt.27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Sample ID	Concrete Cube
Size of Cubes	150mm x 150mm x 150mm
Cross Sectional Area	22500 mm^2
Test Method	IS: 269:2015
Grade of Concrete	**M - 30**
Compressive Strength	**7th** Day

Sl. No.	Date of Casting	Date of Tesing	Weight of Cube (Kg)	Failure Load (KN)	Compressive Strength (N/mm2)
1	24-Jun-22	1-Jul-22	8.125	504.00	22.40
2	24-Jun-22	1-Jul-22	8.130	516.83	22.97
3	24-Jun-22	1-Jul-22	8.136	498.15	22.14

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Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore.
Sample ID	Concrete Cube
Size of Cubes	150mm x 150mm x 150mm
Cross Sectional Area	22500 mm^2
Test Method	IS: 269:2015
Grade of Concrete	**M - 30**
Compressive Strength	**28**th Day

Sl. No.	Date of Casting	Date of Tesing	Weight of Cube (Kg)	Failure Load (KN)	Compressive Strength (N/mm2)
1	24-Jun-22	22-Jul-22	8.132	773.10	34.36
2	24-Jun-22	22-Jul-22	8.150	780.53	34.69
3	24-Jun-22	22-Jul-22	8.151	780.08	34.67

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Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Sample ID	Concrete Cube
Size of Cubes	150mm x 150mm x 150mm
Cross Sectional Area	22500 mm^2
Test Method	IS: 269:2015
Grade of Concrete	**M - 30**
Compressive Strength	7th Day

Sl. No.	Date of Casting	Date of Tesing	Weight of Cube (Kg)	Failure Load (KN)	Compressive Strength (N/mm2)
1	24-Jun-22	1-Jul-22	8.152	503.78	22.39
2	24-Jun-22	1-Jul-22	8.145	498.15	22.14
3	24-Jun-22	1-Jul-22	8.161	512.33	22.77

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Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Sample ID	Concrete Cube
Size of Cubes	150mm x 150mm x 150mm
Cross Sectional Area	22500 mm^2
Test Method	IS: 269:2015
Grade of Concrete	**M - 30**
Compressive Strength	**28**th Day

Sl. No.	Date of Casting	Date of Tesing	Weight of Cube (Kg)	Failure Load (KN)	Compressive Strength (N/mm2)
1	24-Jun-22	22-Jul-22	8.161	787.05	34.98
2	24-Jun-22	22-Jul-22	8.152	772.88	34.35
3	24-Jun-22	22-Jul-22	8.155	765.00	34.00

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Sample ID	Concrete Cube
Size of Cubes	150mm x 150mm x 150mm
Cross Sectional Area	22500 mm^2
Test Method	IS: 269:2015
Grade of Concrete	**M - 30**
Compressive Strength	**7th** Day

Sl. No.	Date of Casting	Date of Tesing	Weight of Cube (Kg)	Failure Load (KN)	Compressive Strength (N/mm2)
1	24-Jun-22	1-Jul-22	8.135	502.43	22.33
2	24-Jun-22	1-Jul-22	8.143	506.48	22.51
3	24-Jun-22	1-Jul-22	8.144	505.35	22.46

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Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Sample ID	Concrete Cube
Size of Cubes	150mm x 150mm x 150mm
Cross Sectional Area	22500 mm^2
Test Method	IS: 269:2015
Grade of Concrete	**M - 30**
Compressive Strength	**28th** Day

Sl. No.	Date of Casting	Date of Tesing	Weight of Cube (Kg)	Failure Load (KN)	Compressive Strength (N/mm2)
1	24-Jun-22	22-Jul-22	8.138	765.90	34.04
2	24-Jun-22	22-Jul-22	8.153	779.18	34.63
3	24-Jun-22	22-Jul-22	8.171	784.13	34.85

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Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Sample ID	Concrete Cube
Size of Cubes	150mm x 150mm x 150mm
Cross Sectional Area	22500 mm^2
Test Method	IS: 269:2015
Grade of Concrete	**M - 30**
Compressive Strength	**7th** Day

Sl. No.	Date of Casting	Date of Tesing	Weight of Cube (Kg)	Failure Load (KN)	Compressive Strength (N/mm2)
1	24-Jun-22	1-Jul-22	8.136	510.98	22.71
2	24-Jun-22	1-Jul-22	8.155	513.45	22.82
3	24-Jun-22	1-Jul-22	8.151	510.98	22.71

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Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt.27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Sample ID	Concrete Cube
Size of Cubes	150mm x 150mm x 150mm
Cross Sectional Area	22500 mm^2
Test Method	IS: 269:2015
Grade of Concrete	**M - 30**
Compressive Strength	**28**th Day

Sl. No.	Date of Casting	Date of Tesing	Weight of Cube (Kg)	Failure Load (KN)	Compressive Strength (N/mm2)
1	24-Jun-22	22-Jul-22	8.140	786.38	34.95
2	24-Jun-22	22-Jul-22	8.168	769.50	34.20
3	24-Jun-22	22-Jul-22	8.151	782.78	34.79

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Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt.27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Sample ID	Concrete Cube
Size of Cubes	150mm x 150mm x 150mm
Cross Sectional Area	22500 mm^2
Test Method	IS: 269:2015
Grade of Concrete	**M - 30**
Compressive Strength	**7th** Day

Sl. No.	Date of Casting	Date of Tesing	Weight of Cube (Kg)	Failure Load (KN)	Compressive Strength (N/mm2)
1	24-Jun-22	1-Jul-22	8.139	510.30	22.68
2	24-Jun-22	1-Jul-22	8.147	507.38	22.55
3	24-Jun-22	1-Jul-22	8.133	512.10	22.76

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For Sapience Consultants and Engineers,

Authorized Signature

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Valagerahalli, Mysore Road, Bangalore 560059
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Email: sapiencebangalore@gmail.com

Test Report on Compressive Strength of Concrete Cubes

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt.27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Sample ID	Concrete Cube
Size of Cubes	150mm x 150mm x 150mm
Cross Sectional Area	22500 mm^2
Test Method	IS: 269:2015
Grade of Concrete	**M - 30**
Compressive Strength	**28th** Day

Sl. No.	Date of Casting	Date of Tesing	Weight of Cube (Kg)	Failure Load (KN)	Compressive Strength (N/mm2)
1	24-Jun-22	22-Jul-22	8.149	781.20	34.72
2	24-Jun-22	22-Jul-22	8.139	779.40	34.64
3	24-Jun-22	22-Jul-22	8.136	774.90	34.44

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Test Report on Compressive Strength of Concrete Cubes

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt.27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Sample ID	Concrete Cube
Size of Cubes	150mm x 150mm x 150mm
Cross Sectional Area	22500 mm^2
Test Method	IS: 269:2015
Grade of Concrete	**M - 30**
Compressive Strength	**7**th Day

Sl. No.	Date of Casting	Date of Tesing	Weight of Cube (Kg)	Failure Load (KN)	Compressive Strength (N/mm2)
1	27-Jun-22	4-Jul-22	8.154	500.18	22.23
2	27-Jun-22	4-Jul-22	8.155	513.68	22.83
3	27-Jun-22	4-Jul-22	8.166	497.70	22.12

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Aggregate Gradation

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Mix Type	Dense Bituminous Macadam
Material	Coarse Aggregates
Test Method	IS 2386(Part 1) 1963 (RA 2011)
Source / Location	Plant
Sample No.	1 & 2
Date	18.07.2022

Total Weight of Sample (gms) : **10000.00**

Sieve Size (mm)	Weight Retained in gms	Cumulative Weight Retained (gm)	Cummulative % Retained	Cumulative % Passing	Requirement as per MORTH table 500.17	Remarks
37.50	0	0	0	100	100	Gradation satisfies the MORTH Grade-II Specification for Dense Bituminous Macadam
26.50	279.3	279.3	2.79	97.21	95 - 100	
19.00	2704.4	2983.7	29.84	70.16	60 - 80	
13.20	1760.9	4744.6	47.45	52.55	40 - 60	
4.75	1652.1	6396.7	63.97	36.03	25 - 40	
2.36	1392.1	7788.8	77.89	22.11	15 - 30	
0.300	490.5	8279.3	82.79	17.21	8 - 22	
0.075	1502.5	9781.8	97.82	2.18	0 - 5	

Total Weight of Sample (gms) : **10000.00**

Sieve Size (mm)	Weight Retained in gms	Cumulative Weight Retained (gm)	Cummulative % Retained	Cumulative % Passing	Requirement as per MORTH table 500.17	Remarks
37.50	0	0	0	100	100	Gradation satisfies the MORTH Grade-II Specification for Dense Bituminous Macadam
26.50	465.2	465.2	4.65	95.35	95 - 100	
19.00	2234.2	2699.4	26.99	73.01	60 - 80	
13.20	2046.7	4746.1	47.46	52.54	40 - 60	
4.75	1497.3	6243.4	62.43	37.57	25 - 40	
2.36	1684.1	7927.5	79.28	20.72	15 - 30	
0.300	773.4	8700.9	87.01	12.99	8 - 22	
0.075	1041.9	9742.8	97.43	2.57	0 - 5	

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Aggregate Gradation

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Mix Type	Dense Bituminous Macadam
Material	Coarse Aggregates
Test Method	IS 2386(Part 1) 1963 (RA 2011)
Source / Location	Plant
Sample No.	1 & 2
Date	18.07.2022

Total Weight of Sample (gms) : **10000.00**

Sieve Size (mm)	Weight Retained in gms	Cumulative Weight Retained (gm)	Cummulative % Retained	Cumulative % Passing	Requirement as per MORTH table 500.17	Remarks
37.50	0	0	0	100	100	Gradation satisfies the MORTH Grade-II Specification for Dense Bituminous Macadam
26.50	279.3	279.3	2.79	97.21	95 - 100	
19.00	2704.4	2983.7	29.84	70.16	60 - 80	
13.20	1760.9	4744.6	47.45	52.55	40 - 60	
4.75	1652.1	6396.7	63.97	36.03	25 - 40	
2.36	1392.1	7788.8	77.89	22.11	15 - 30	
0.300	490.5	8279.3	82.79	17.21	8 - 22	
0.075	1502.5	9781.8	97.82	2.18	0 - 5	

Total Weight of Sample (gms) : **10000.00**

Sieve Size (mm)	Weight Retained in gms	Cumulative Weight Retained (gm)	Cummulative % Retained	Cumulative % Passing	Requirement as per MORTH table 500.17	Remarks
37.50	0	0	0	100	100	Gradation satisfies the MORTH Grade-II Specification for Dense Bituminous Macadam
26.50	465.2	465.2	4.65	95.35	95 - 100	
19.00	2234.2	2699.4	26.99	73.01	60 - 80	
13.20	2046.7	4746.1	47.46	52.54	40 - 60	
4.75	1497.3	6243.4	62.43	37.57	25 - 40	
2.36	1684.1	7927.5	79.28	20.72	15 - 30	
0.300	773.4	8700.9	87.01	12.99	8 - 22	
0.075	1041.9	9742.8	97.43	2.57	0 - 5	

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SAPIENCE CONSULTANTS & ENGINEERS Bangalore

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Aggregate Gradation

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Mix Type	Dense Bituminous Macadam
Material	Coarse Aggregates
Test Method	IS 2386(Part 1) 1963 (RA 2011)
Source / Location	Plant
Sample No.	3 & 4
Date	19.07.2022

Total Weight of Sample (gms) : **10000.00**

Sieve Size (mm)	Weight Retained in gms	Cumulative Weight Retained (gm)	Cummulative % Retained	Cumulative % Passing	Requirement as per MORTH table 500.17	Remarks
37.50	0	0	0	100	100	Gradation satisfies the MORTH Grade-II Specification for Dense Bituminous Macadam
26.50	461.1	461.1	4.61	95.39	95 - 100	
19.00	2509.4	2970.5	29.71	70.29	60 - 80	
13.20	2137.1	5107.6	51.08	48.92	40 - 60	
4.75	1723.4	6831.0	68.31	31.69	25 - 40	
2.36	1280.4	8111.4	81.11	18.89	15 - 30	
0.300	227.0	8338.4	83.38	16.62	8 - 22	
0.075	1291.5	9629.9	96.3	3.7	0 - 5	

Total Weight of Sample (gms) : **10000.00**

Sieve Size (mm)	Weight Retained in gms	Cumulative Weight Retained (gm)	Cummulative % Retained	Cumulative % Passing	Requirement as per MORTH table 500.17	Remarks
37.50	0	0	0	100	100	Gradation satisfies the MORTH Grade-II Specification for Dense Bituminous Macadam
26.50	206.3	206.3	2.06	97.94	95 - 100	
19.00	2682.4	2888.7	28.89	71.11	60 - 80	
13.20	1546.2	4434.9	44.35	55.65	40 - 60	
4.75	2586.4	7021.3	70.21	29.79	25 - 40	
2.36	596.5	7617.8	76.18	23.82	15 - 30	
0.300	1064.4	8682.2	86.82	13.18	8 - 22	
0.075	1087.4	9769.6	97.70	2.30	0 - 5	

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Marshall Stability

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Mix Type	Dense Bituminous Macadam
Material	Coarse Aggregates
Test Method	IS 2386(Part 3):1963
Source / Location	Plant
Sample No.	1 & 2
Date	18.07.2022

Sl. No.	Properties	Test #1	Test #2	**Requirement as per MORTH (Table 500-19)**
1	Marshall Stability value at 600C in KGs	1317.00	1318.00	> 900
2	Marshal flow, mm	3.38	3.69	2 - 4
3	Percent air voids in Mineral Aggregate	3.66	3.24	13 - 15
4	Voids in Compacted Mix	5.37	5.21	3 - 6
5	Percent voids in mineral aggregate (VMA)	12.06	11.22	11 - 13
6	Density, g/cc	2.39	2.62	---

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Rate of Spread of Tack Coat

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Mix Type	80/100 grade bitumen(VG10)
Material	Tack Coat
Test Method	AASHTO T 164 & AASHTO T 30
Source / Location	Site
Sample No.	1 & 2
Date	18.07.2022

Sl. No.	Description	Unit	Test #1		Test #2	
			Tray - 1	Tray - 2	Tray - 1	Tray - 2
1	Size of Plate (mxn)	m^2	0.3 x 0.3	0.3 x 0.3	0.3 x 0.3	0.3 x 0.3
2	Area of the Plate (a)	m^2	0.09	0.09	0.09	0.09
3	Initial weight of the empty plate (b)	kg	2.787	2.853	2.787	2.853
4	Final weight of plate after application of Tack Coat C	kg	2.809	2.875	2.809	2.875
5	Weight of Tack Coat (d = c-b)	kg	0.022	0.022	0.022	0.022
6	Rate of Spread (d/a)	kg / m^2	0.24	0.24	0.24	0.24
7	Average	kg / m^2	**0.24**		**0.24**	
8	Specified Limit	kg / m^2	Not Less than 0.25 kg / m^2			

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Rate of Spread of Tack Coat

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Mix Type	80/100 grade bitumen(VG10)
Material	Tack Coat
Test Method	AASHTO T 164 & AASHTO T 30
Source / Location	Site
Sample No.	3 & 4
Date	19.07.2022

Sl. No.	Description	Unit	Test #3		Test #4	
			Tray - 1	Tray - 2	Tray - 1	Tray - 2
1	Size of Plate (mxn)	m^2	0.3 x 0.3	0.3 x 0.3	0.3 x 0.3	0.3 x 0.3
2	Area of the Plate (a)	m^2	0.09	0.09	0.09	0.09
3	Initial weight of the empty plate (b)	kg	2.787	2.853	2.787	2.853
4	Final weight of plate after application of Tack Coat C	kg	2.809	2.876	2.811	2.877
5	Weight of Tack Coat (d = c-b)	kg	0.022	0.023	0.024	0.024
6	Rate of Spread (d/a)	kg / m^2	0.24	0.26	0.27	0.27
7	Average	kg / m^2	**0.25**		**0.27**	
8	Specified Limit	kg / m^2	Not Less than 0.25 kg / m^2			

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SAPIENCE CONSULTANTS Bangalore-59 ENGINEERS

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Binder Content and Mix Gradation

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Mix Type	Dense Bituminous Macadam
Material	Dense Bituminous Macadam Mix
Test Method	AASHTO T 164 & AASHTO T 30
Source / Location	Site
Sample No.	1 & 2
Date	18.07.2022

Sl. No.	Description	Test #1	Test #2
1	Weight of mix before extraction = M in gms.	500.00	500.00
2	Wt. of filter paper before extraction =P1 in gms.	4.00	4.00
3	Wt. of filter paper after extraction =P2 in gms.	6.00	6.00
4	Quantity of Dry Aggregates deposited on filter paper a1= P2-P1 in gms.	2.00	2.00
5	Wt. of Dry Aggregates in the extractor container a2 in gms.	**476.00**	**476.00**
6	Total Wt. of Dry Aggregates A = a1+a2 in gms.	478.00	478.00
7	Wt. of Bitumen B= M-A in gms.	22.00	22.00
8	% of Bitumen Content (B/M)x100	4.40	4.40
9	Average	4.40%	

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Binder Content and Mix Gradation

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Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Mix Type	Dense Bituminous Macadam
Material	Coarse Aggregates
Test Method	AASHTO T 164 & AASHTO T 30
Source / Location	Site
Sample No.	1 & 2
Date	18.07.2022

Weight of Sample after test (gms) : **476.00**

Sieve Size (mm)	Weight Retained in gms	Cumulative Weight Retained	Cummulative % Retained	Cumulative % Passing	Requirement as per MORTH table 500.17	Remarks
37.50	0	0	0	100	100	Gradation satisfies the MORTH Grade-II Specification for Dense Bituminous Macadam
26.50	14.5	14.5	3.05	96.95	95 - 100	
19.00	14.0	28.5	5.99	94.01	6.00	
13.20	193.0	221.5	46.53	53.47	40 - 60	
4.75	475.0	696.5	146.32	-46.32	**25 - 40**	
2.36	-349.9	346.6	72.82	27.18	15 - 30	
0.300	69.6	416.2	87.44	12.56	8 - 22	
0.075	49.5	465.7	97.84	2.16	0 - 5	

Weight of Sample after test (gms) : **476.00**

Sieve Size (mm)	Weight Retained in gms	Cumulative Weight Retained	Cummulative % Retained	Cumulative % Passing	Requirement as per MORTH table 500.17	Remarks
37.50	0	0	0	100	100	Gradation satisfies the MORTH Grade-II Specification for Dense Bituminous Macadam
26.50	18.3	18.3	3.84	96.16	95 - 100	
19.00	122.3	140.6	29.54	70.46	60 - 80	
13.20	111.1	251.7	52.88	47.12	40 - 60	
4.75	69.8	321.5	67.54	32.46	25 - 40	
2.36	65.2	386.7	81.24	18.76	15 - 30	
0.300	-5.6	381.1	80.06	19.94	8 - 22	
0.075	77.2	458.3	96.28	3.72	0 - 5	

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For Sapience Consultants and Engineers,

Authorized Signature

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Building, Geo-Tech & Road Materials Testing Laboratory)

#B9-003, GANGA, Jnanabharathi Enclave,
Valagerahalli, Mysore Road, Bangalore 560059
Ph: 9448853634, 8762194386.
Email: sapiencebangalore@gmail.com

Binder Content and Mix Gradation

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Mix Type	Dense Bituminous Macadam
Material	Dense Bituminous Macadam Mix
Test Method	AASHTO T 164 & AASHTO T 30
Source / Location	Site
Sample No.	3 & 4
Date	18.07.2022

Sl. No.	Description	Test #3	Test #4
1	Weight of mix before extraction = M in gms.	500.00	500.00
2	Wt. of filter paper before extraction =P1 in gms.	4.00	4.00
3	Wt. of filter paper after extraction =P2 in gms.	5.00	6.00
4	Quantity of Dry Aggregates deposited on filter paper a1= P2-P1 in gms.	1.00	2.00
5	Wt. of Dry Aggregates in the extractor container a2 in gms.	**475.00**	**476.00**
6	Total Wt. of Dry Aggregates A = a1+a2 in gms.	476.00	478.00
7	Wt. of Bitumen B= M-A in gms.	24.00	22.00
8	% of Bitumen Content (B/M)x100	4.80	4.40
9	Average	4.60%	

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Binder Content and Mix Gradation

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Mix Type	Dense Bituminous Macadam
Material	Coarse Aggregates
Test Method	AASHTO T 164 & AASHTO T 30
Source / Location	Site
Sample No.	3 & 4
Date	18.07.2022

Weight of Sample after test (gms) : **476.00**

Sieve Size (mm)	Weight Retained in gms	Cumulative Weight Retained	Cummulative % Retained	Cumulative % Passing	Requirement as per MORTH table 500.17	Remarks
37.50	0	0	0	100	100	Gradation satisfies the MORTH Grade-II Specification for Dense Bituminous Macadam
26.50	22.5	22.5	4.73	95.27	95 - 100	
19.00	6.1	28.6	6.01	93.99	6.00	
13.20	181.4	210.0	44.12	55.88	40 - 60	
4.75	476.0	686.0	144.12	-44.12	**25 - 40**	
2.36	-305.0	381.0	80.04	19.96	15 - 30	
0.300	26.5	407.5	85.61	14.39	8 - 22	
0.075	58.4	465.9	97.88	2.12	0 - 5	

Weight of Sample after test (gms) : **476.00**

Sieve Size (mm)	Weight Retained in gms	Cumulative Weight Retained	Cummulative % Retained	Cumulative % Passing	Requirement as per MORTH table 500.17	Remarks
37.50	0	0	0	100	100	Gradation satisfies the MORTH Grade-II Specification for Dense Bituminous Macadam
26.50	10.8	10.8	2.27	97.73	95 - 100	
19.00	128.7	139.5	29.31	70.69	60 - 80	
13.20	74.4	213.9	44.94	55.06	40 - 60	
4.75	87.9	301.8	63.40	36.60	25 - 40	
2.36	72.4	374.2	78.61	21.39	15 - 30	
0.300	42.6	416.8	87.56	12.44	8 - 22	
0.075	48.3	465.1	97.71	2.29	0 - 5	

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Binder Content and Mix Gradation

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Mix Type	Dense Bituminous Macadam
Material	Dense Bituminous Macadam Mix
Test Method	AASHTO T 164 & AASHTO T 30
Source / Location	Site
Sample No.	5 & 6
Date	19.07.2022

Sl. No.	Description	Test #5	Test #6
1	Weight of mix before extraction = M in gms.	500.00	500.00
2	Wt. of filter paper before extraction =P1 in gms.	4.00	4.00
3	Wt. of filter paper after extraction =P2 in gms.	5.00	6.00
4	Quantity of Dry Aggregates deposited on filter paper a1= P2-P1 in gms.	1.00	2.00
5	Wt. of Dry Aggregates in the extractor container a2 in gms.	**476.00**	**475.00**
6	Total Wt. of Dry Aggregates A = a1+a2 in gms.	477.00	477.00
7	Wt. of Bitumen B= M-A in gms.	23.00	23.00
8	% of Bitumen Content (B/M)x100	4.60	4.60
9	Average	4.60%	

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Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Mix Type	Dense Bituminous Macadam
Material	Coarse Aggregates
Test Method	AASHTO T 164 & AASHTO T 30
Source / Location	Site
Sample No.	5 & 6
Date	19.07.2022

Weight of Sample after test (gms) : **476.00**

Sieve Size (mm)	Weight Retained in gms	Cumulative Weight Retained	Cummulative % Retained	Cumulative % Passing	Requirement as per MORTH table 500.17	Remarks
37.50	0	0	0	100	100	Gradation satisfies the MORTH Grade-II Specification for Dense Bituminous Macadam
26.50	12.0	12.0	2.52	97.48	95 - 100	
19.00	16.6	28.6	6.01	93.99	6.00	
13.20	190.7	219.3	46.07	53.93	40 - 60	
4.75	475.0	694.3	145.86	-45.86	**25 - 40**	
2.36	-310.0	384.3	80.74	19.26	15 - 30	
0.300	4.6	388.9	81.7	18.30	8 - 22	
0.075	71.0	459.9	96.62	3.38	0 - 5	

Weight of Sample after test (gms) : **476.00**

Sieve Size (mm)	Weight Retained in gms	Cumulative Weight Retained	Cummulative % Retained	Cumulative % Passing	Requirement as per MORTH table 500.17	Remarks
37.50	0	0	0	100	100	Gradation satisfies the MORTH Grade-II Specification for Dense Bituminous Macadam
26.50	17.3	17.3	3.63	96.37	95 - 100	
19.00	126.9	144.2	30.29	69.71	60 - 80	
13.20	66.6	210.8	44.29	55.71	40 - 60	
4.75	92.7	303.5	63.76	36.24	25 - 40	
2.36	56.5	360.0	75.63	24.37	15 - 30	
0.300	41.5	401.5	84.35	15.65	8 - 22	
0.075	64.9	466.4	97.98	2.02	0 - 5	

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SAPIENCE CONSULTANTS Bangalore

Authorized Signatory

Binder Content and Mix Gradation

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Mix Type	Dense Bituminous Macadam
Material	Dense Bituminous Macadam Mix
Test Method	AASHTO T 164 & AASHTO T 30
Source / Location	Site
Sample No.	7 & 8
Date	19.07.2022

Sl. No.	Description	Test #7	Test #8
1	Weight of mix before extraction = M in gms.	500.00	500.00
2	Wt. of filter paper before extraction =P1 in gms.	4.00	4.00
3	Wt. of filter paper after extraction =P2 in gms.	6.00	6.00
4	Quantity of Dry Aggregates deposited on filter paper a1= P2-P1 in gms.	2.00	2.00
5	Wt. of Dry Aggregates in the extractor container a2 in gms.	**475.00**	**475.00**
6	Total Wt. of Dry Aggregates A = a1+a2 in gms.	477.00	477.00
7	Wt. of Bitumen B= M-A in gms.	23.00	23.00
8	% of Bitumen Content (B/M)x100	4.60	4.60
9	Average	4.60%	

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Valagerahalli, Mysore Road, Bangalore 560059
Ph: 9448853634, 8762194386.
Email: sapiencebangalore@gmail.com

Quality of Binder

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Mix Type	Bituminous Concrete
Material	VG-30 grade Bitumen
Source / Location	Plant
Date	13.07.2022

The results of the tests conducted on the bitumen sample using for VG-30 Bitumen

Sl. No	Description	Test #1	Test #2	Requirement as per IS:73:2013
1	Penetration at 25 ^{0}C, 1/10 mm	62	61	50 - 70
2	Softening point, ^{0}C	55.3	56.6	> 47
3	Specific Gravity	1.2	1.2	Min 0.97
4	Ductility at 25^{0}C, cm	98	99	> 40
5	Flash Point, ^{0}C	316	315	> 220

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Aggregate Stripping Value

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Mix Type	Bituminous Concrete
Material	VG-30 grade Bitumen
Test Method	IS : 6241 - 1974 & Specification for Road & Bridge Works, MORTH, Revision - V
Type of binder	VG-30 grade Bitumen
% of Binder Used	5.4% by weight
Weight of Aggregate	500 gms
Weight of Binder	27 gms
Water Bath Temp.	40° C
Source / Location	Plant
Sample No.	1
Date	13.07.2022

Observation No	Stripping Percentage	Average Percentage	Average Retained Coating (%)
1	3.51	3.69	97.21
2	3.58		
3	3.99		

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Comments: Minimum Allowable Aggregate Stripping Value for Bituminous Concrete is 95%

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Binder Content and Mix Gradation

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Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Mix Type	Bituminous Concrete
Material	Bituminous Concrete Mix
Test Method	AASHTO T 164 & AASHTO T 30
Source / Location	Site
Sample No.	7 & 8
Date	21.07.2022

Sl. No.	Description	Test #7	Test #8
1	Weight of mix before extraction = M in gms.	500.00	500.00
2	Wt. of filter paper before extraction =P1 in gms.	4.00	4.00
3	Wt. of filter paper after extraction =P2 in gms.	4.00	5.00
4	Quantity of Dry Aggregates deposited on filter paper a1= P2-P1 in gms.	0.00	1.00
5	Wt. of Dry Aggregates in the extractor container a2 in gms.	**471.00**	**472.00**
6	Total Wt. of Dry Aggregates A = a1+a2 in gms.	471.00	473.00
7	Wt. of Bitumen B= M-A in gms.	29.00	27.00
8	% of Bitumen Content (B/M)x100	5.80	5.40

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Authorized Signatore

ಸಹಾಯಕ ಕಾರ್ಯನಿರ್ವಾಹಕ ಅಭಿಯಂತರರು
ದಾಸರಹಳ್ಳಿ ಉಪವಿಭಾಗ
ಜಿಬಿಎಂಪಿ, ಬೆಂಗಳೂರು

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Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Mix Type	Bituminous Concrete
Material	Bituminous Concrete Mix
Test Method	AASHTO T 164 & AASHTO T 30
Source / Location	Site
Sample No.	3 & 4
Date	20.07.2022

Sl. No.	Description	Test #3	Test #4
1	Weight of mix before extraction = M in gms.	500.00	500.00
2	Wt. of filter paper before extraction =P1 in gms.	4.00	4.00
3	Wt. of filter paper after extraction =P2 in gms.	4.00	5.00
4	Quantity of Dry Aggregates deposited on filter paper a1= P2-P1 in gms.	0.00	1.00
5	Wt. of Dry Aggregates in the extractor container a2 in gms.	**471.00**	**471.00**
6	Total Wt. of Dry Aggregates A = a1+a2 in gms.	471.00	472.00
7	Wt. of Bitumen B= M-A in gms.	29.00	28.00
8	% of Bitumen Content (B/M)x100	5.80	5.60

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Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Mix Type	Bituminous Concrete
Material	Coarse Aggregates
Test Method	AASHTO T 164 & AASHTO T 30
Source / Location	Site
Sample No.	3 & 4
Date	20.07.2022

Weight of Sample after test (gms) : **472.00**

Sieve Size (mm)	Weight Retained in gms	Cumulative Weight Retained	Cummulative % Retained	Cumulative % Passing	Requirement as per MORTH table 500.17	Remarks
19	0	0	0	100	100	Gradation satisfies the MORTH Grade-II Specification for Bituminous Concrete
13.2	16.8	16.8	3.56	96.44	90 - 100	
9.5	85.9	102.7	21.76	78.24	70 - 88	
4.75	89.8	192.5	40.78	59.22	53 - 71	
2.36	48.9	241.4	51.14	48.86	42 - 58	
1.18	53.2	294.6	62.42	37.58	34 - 48	
0.600	28.6	323.2	68.47	31.53	26 - 38	
0.300	26.3	349.5	74.05	25.95	18 - 28	
0.150	58.6	408.1	86.46	13.54	12 - 20	
0.075	32.8	440.9	93.41	6.59	4 - 10	

Weight of Sample after test (gms) : **472.00**

Sieve Size (mm)	Weight Retained in gms	Cumulative Weight Retained	Cummulative % Retained	Cumulative % Passing	Requirement as per MORTH table 500.17	Remarks
19	0	0	0	100	100	Gradation satisfies the MORTH Grade-II Specification for Bituminous Concrete
13.2	14.6	14.6	3.09	96.91	90 - 100	
9.5	79.2	93.8	19.87	80.13	70 - 88	
4.75	108.3	202.1	42.82	57.18	53 - 71	
2.36	51.4	253.5	53.71	46.29	42 - 58	
1.18	34.0	287.5	60.91	39.09	34 - 48	
0.600	37.6	325.1	68.88	31.12	26 - 38	
0.300	30.3	355.4	75.30	24.70	18 - 28	
0.150	34.2	389.6	82.54	17.46	12 - 20	
0.075	49.5	439.1	93.03	6.97	4 - 10	

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g, Geo-Tech & Road Materials Testing Laboratory)

#B9-003, GANGA, Jnanabharathi Enclave,
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Ph: 9448853634, 8762194386.
Email: sapiencebangalore@gmail.com

Aggregate Impact Value

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Mix Type	Bituminous Concrete
Material	Coarse Aggregates
Test Method	IS : 2386 (Part - IV) 1963
Source / Location	Plant
Sample No.	1
Date	13.07.2022

Sl. No.	Details	Test No.		Average Aggregate Impact Value
		1	2	
1	Weight of Empty Cylinder (in gms) W1	868	868	13.50%
	Weight of cylinder filled with sample (in gms) W2	1172	1172	
2	Weight of Sample (in gms) = (W2 - W1) W3	304	304	
	Weight of Sample passing through 2.36mm IS sieve after impact (in gms) W4	40	43	
	Weight of Sample retained in 2.36mm IS sieve after impact (in gms) W5	264	261	
3	Aggregate Impact Value in Percentage	13.00%	14.00%	

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→ Maximum allowable Aggregate Impact value for Bituminous Concrete is 24%(MORTH table no.500.16)

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Aggregate Particle Shape

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Mix Type	Bituminous Concrete
Material	Coarse Aggregates
Test Method	IS 2386(Part 1) 1963 (RA 2011)
Source / Location	Plant
Sample No.	1
Date	13.07.2022

Sl. No.	Test	1	2	3	Requirements as per MORTH 5th edition table no 500.16
1	Flakiness Index	9.80	11.40	11.40	Combined Flakiness & Elongation index Max 35%
2	Elongation Index	11.80	11.90	11.10	
3	Combined Flakiness & Elongation index	21.60	23.30	22.50	

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Aggregate Gradation

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Mix Type	Bituminous Concrete
Material	Coarse Aggregates
Test Method	IS 2386(Part 1) 1963 (RA 2011)
Source / Location	Plant
Sample No.	1 & 2
Date	20.07.2022

Total Weight of Sample (gms) : **5000.00**

Sieve Size (mm)	Weight Retained in gms	Cumulative Weight Retained (gm)	Cummulative % Retained	Cumulative % Passing	Requirement as per MORTH table 500.17	Remarks
19	0	0	0	100	100	Gradation satisfies the MORTH Grade-II Specification for Bituminous Concrete
13.2	399.8	399.8	8	92	90 - 100	
9.5	719.5	1119.3	22.39	77.61	70 - 88	
4.75	960.7	2080.0	41.6	58.4	53 - 71	
2.36	447.9	2527.9	50.56	49.44	42 - 58	
1.18	581.4	3109.3	62.19	37.81	34 - 48	
0.600	302.9	3412.2	68.24	31.76	26 - 38	
0.300	444.5	3856.7	77.13	22.87	18 - 28	
0.150	399.5	4256.2	85.12	14.88	12 - 20	
0.075	445.0	4701.2	94.02	5.98	4 - 10	

Total Weight of Sample (gms) : **5000.00**

Sieve Size (mm)	Weight Retained in gms	Cumulative Weight Retained (gm)	Cummulative % Retained	Cumulative % Passing	Requirement as per MORTH table 500.17	Remarks
19	0	0	0	100	100	Gradation satisfies the MORTH Grade-II Specification for Bituminous Concrete
13.2	249.1	249.1	4.98	95.02	90 - 100	
9.5	868.2	1117.3	22.35	77.65	70 - 88	
4.75	1031.2	2148.5	42.97	57.03	53 - 71	
2.36	375.6	2524.1	50.48	49.52	42 - 58	
1.18	526.6	3050.7	61.01	38.99	34 - 48	
0.600	442.1	3492.8	69.86	30.14	26 - 38	
0.300	416.1	3908.9	78.18	21.82	18 - 28	
0.150	363.4	4272.3	85.45	14.55	12 - 20	
0.075	473.5	4745.8	94.92	5.08	4 - 10	

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For Sapience Consultants and Engineers,

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Aggregate Gradation

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Mix Type	Bituminous Concrete
Material	Coarse Aggregates
Test Method	IS 2386(Part 1) 1963 (RA 2011)
Source / Location	Plant
Sample No.	3 & 4
Date	21.07.2022

Total Weight of Sample (gms) : **5000.00**

Sieve Size (mm)	Weight Retained in gms	Cumulative Weight Retained (gm)	Cummulative % Retained	Cumulative % Passing	Requirement as per MORTH table 500.17	Remarks
19	0	0	0	100	100	Gradation satisfies the MORTH Grade-II Specification for Bituminous Concrete
13.2	233.9	233.9	4.68	95.32	90 - 100	
9.5	995.4	1229.3	24.59	75.41	70 - 88	
4.75	603.4	1832.7	36.65	63.35	53 - 71	
2.36	566.6	2399.3	47.99	52.01	42 - 58	
1.18	682.6	3081.9	61.64	38.36	34 - 48	
0.600	313.1	3395.0	67.9	32.1	26 - 38	
0.300	406.3	3801.3	76.03	23.97	18 - 28	
0.150	302.0	4103.3	82.07	17.93	12 - 20	
0.075	502.3	4605.6	92.11	7.89	4 - 10	

Total Weight of Sample (gms) : **5000.00**

Sieve Size (mm)	Weight Retained in gms	Cumulative Weight Retained (gm)	Cummulative % Retained	Cumulative % Passing	Requirement as per MORTH table 500.17	Remarks
19	0	0	0	100	100	Gradation satisfies the MORTH Grade-II Specification for Bituminous Concrete
13.2	271.7	271.7	5.43	94.57	90 - 100	
9.5	818.4	1090.1	21.80	78.20	70 - 88	
4.75	744.2	1834.3	36.69	63.31	53 - 71	
2.36	830.5	2664.8	53.30	46.70	42 - 58	
1.18	343.5	3008.3	60.17	39.83	34 - 48	
0.600	510.0	3518.3	70.37	29.63	26 - 38	
0.300	214.4	3732.7	74.65	25.35	18 - 28	
0.150	482.3	4215.0	84.30	15.70	12 - 20	
0.075	388.6	4603.6	92.07	7.93	4 - 10	

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Marshall Stability

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Mix Type	Bituminous Concrete
Material	Coarse Aggregates
Test Method	IS 2386(Part 3):1963
Source / Location	Plant
Sample No.	1 & 2
Date	20.07.2022

Sl. No.	Properties	Test #1	Test #2	**Requirement as per MORTH (Table 500-19)**
1	Marshall Stability value at 600C in KGs	1318.00	1312.00	> 900
2	Marshal flow, mm	3.78	3.63	2 - 4
3	Percent air voids in Mineral Aggregate	3.37	3.15	13 - 15
4	Voids in Compacted Mix	4.68	4.13	3 - 6
5	Percent voids in mineral aggregate (VMA)	12.57	12.55	11 - 13
6	Density, g/cc	2.78	2.10	---

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Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Mix Type	Bituminous Concrete
Material	Coarse Aggregates
Test Method	IS 2386(Part 3):1963
Source / Location	Plant
Sample No.	3 & 4
Date	20.07.2022

Sl. No.	Properties	Test #3	Test #4	**Requirement as per MORTH (Table 500-19)**
1	Marshall Stability value at 600C in KGs	1313.00	1314.00	> 900
2	Marshal flow, mm	3.73	3.01	2 - 4
3	Percent air voids in Mineral Aggregate	4.74	3.80	13 - 15
4	Voids in Compacted Mix	5.11	4.89	3 - 6
5	Percent voids in mineral aggregate (VMA)	12.40	12.85	11 - 13
6	Density, g/cc	2.27	2.11	---

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Marshall Stability

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Mix Type	Bituminous Concrete
Material	Coarse Aggregates
Test Method	IS 2386(Part 3):1963
Source / Location	Plant
Sample No.	5 & 6
Date	21.07.2022

Sl. No.	Properties	Test #5	Test #6	**Requirement as per MORTH (Table 500-19)**
1	Marshall Stability value at 600C in KGs	1312.00	1316.00	> 900
2	Marshal flow, mm	2.79	2.39	2 - 4
3	Percent air voids in Mineral Aggregate	3.22	4.40	13 - 15
4	Voids in Compacted Mix	4.61	5.28	3 - 6
5	Percent voids in mineral aggregate (VMA)	12.30	12.47	11 - 13
6	Density, g/cc	2.61	2.85	---

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For Sapience Consultants and Engineers,

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ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಶೆಟ್ಟಿಹಳ್ಳಿ ಉಪವಿಭಾಗ
ಬಿಬಿಎಂಪಿ, ಬೆಂಗಳೂರು

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Rate of Spread of Tack Coat

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/80 Dt. 01/09/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Mix Type	Bituminous Concrete
Material	EMULSION
Test Method	AASHTO T 164 & AASHTO T 30
Source / Location	Site
Sample No.	3 & 4
Date	21.07.2022

Sl. No.	Description	Unit	Test #3		Test #4	
			Tray - 1	Tray - 2	Tray - 1	Tray - 2
1	Size of Plate (mxn)	m^2	0.3 x 0.3	0.3 x 0.3	0.3 x 0.3	0.3 x 0.3
2	Area of the Plate (a)	m^2	0.09	0.09	0.09	0.09
3	Initial weight of the empty plate (b)	kg	2.787	2.853	2.787	2.853
4	Final weight of plate after application of Tack Coat C	kg	2.810	2.875	2.810	2.876
5	Weight of Tack Coat (d = c-b)	kg	0.023	0.022	0.023	0.023
6	Rate of Spread (d/a)	kg / m^2	0.26	0.24	0.26	0.26
7	Average	kg / m^2	**0.25**		**0.26**	
8	Specified Limit	kg / m^2	Not Less than 0.25 kg / m^2			

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Binder Content and Mix Gradation

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Mix Type	Bituminous Concrete
Material	Bituminous Concrete Mix
Test Method	AASHTO T 164 & AASHTO T 30
Source / Location	Site
Sample No.	1 & 2
Date	20.07.2022

Sl. No.	Description	Test #1	Test #2
1	Weight of mix before extraction = M in gms.	500.00	500.00
2	Wt. of filter paper before extraction =P1 in gms.	4.00	4.00
3	Wt. of filter paper after extraction =P2 in gms.	5.00	4.00
4	Quantity of Dry Aggregates deposited on filter paper a1= P2-P1 in gms.	1.00	0.00
5	Wt. of Dry Aggregates in the extractor container a2 in gms.	**472.00**	**472.00**
6	Total Wt. of Dry Aggregates A = a1+a2 in gms.	473.00	472.00
7	Wt. of Bitumen B= M-A in gms.	27.00	28.00
8	% of Bitumen Content (B/M)x100	5.40	5.60

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Binder Content and Mix Gradation

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Mix Type	Bituminous Concrete
Material	Coarse Aggregates
Test Method	AASHTO T 164 & AASHTO T 30
Source / Location	Site
Sample No.	1 & 2
Date	20.07.2022

Weight of Sample after test (gms) : **472.00**

Sieve Size (mm)	Weight Retained in gms	Cumulative Weight Retained	Cummulative % Retained	Cumulative % Passing	Requirement as per MORTH table 500.17	Remarks
19	0	0	0	100	100	Gradation satisfies the MORTH Grade-II Specification for Bituminous Concrete
13.2	36.6	36.6	7.75	92.25	90 - 100	
9.5	80.0	116.6	24.7	75.3	70 - 88	
4.75	71.3	187.9	39.81	60.19	53 - 71	
2.36	51.8	239.7	50.78	49.22	42 - 58	
1.18	36.6	276.3	58.54	41.46	34 - 48	
0.600	54.7	331.0	70.13	29.87	26 - 38	
0.300	20.8	351.8	74.53	25.47	18 - 28	
0.150	38.5	390.3	82.69	17.31	12 - 20	
0.075	61.7	452.0	95.76	4.24	4 - 10	

Weight of Sample after test (gms) : **472.00**

Sieve Size (mm)	Weight Retained in gms	Cumulative Weight Retained	Cummulative % Retained	Cumulative % Passing	Requirement as per MORTH table 500.17	Remarks
19	0	0	0	100	100	Gradation satisfies the MORTH Grade-II Specification for Bituminous Concrete
13.2	37.5	37.5	7.94	92.06	90 - 100	
9.5	73.4	110.9	23.50	76.50	70 - 88	
4.75	89.4	200.3	42.44	57.56	53 - 71	
2.36	49.3	249.6	52.88	47.12	42 - 58	
1.18	39.4	289.0	61.23	38.77	34 - 48	
0.600	37.3	326.3	69.13	30.87	26 - 38	
0.300	49.3	375.6	79.58	20.42	18 - 28	
0.150	33.8	409.4	86.74	13.26	12 - 20	
0.075	29.1	438.5	92.90	7.10	4 - 10	

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Test Report on Compressive Strength of Concrete Cubes

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Sample ID	Concrete Cube
Size of Cubes	150mm x 150mm x 150mm
Cross Sectional Area	22500 mm^2
Test Method	IS: 269:2015
Grade of Concrete	**M - 20**
Compressive Strength	7th Day

Sl. No.	Date of Casting	Date of Tesing	Weight of Cube (Kg)	Failure Load (KN)	Compressive Strength (N/mm2)
1	8-Jun-22	15-Jun-22	8.167	345.15	15.34
2	8-Jun-22	15-Jun-22	8.143	340.43	15.13
3	8-Jun-22	15-Jun-22	8.160	338.85	15.06

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For Sapience Consultants and Engineers,

Authorized Signature

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(Building, Geo-Tech & Road Materials Testing Laboratory)

#B9-003, GANGA, Jnanabharathi Enclave,
Valagerahalli, Mysore Road, Bangalore 560059
Ph: 9448853634, 8762194386
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Project Name	Restoration and Improvements of roads and drains in A.Y.R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli - BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore
Job No	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Sample ID	Concrete Cube
Size of Cubes	150mm x 150mm x 150mm
Cross Sectional Area	22500 mm^2
Test Method	IS :269-2015
Grade of Concrete	M - 20
Compressive Strength	28th Day

Sl No	Date of Casting	Date of Tesing	Weight of Cube (Kg)	Failure Load (KN)	Compressive Strength (N/mm2)
1	8-Jun-22	6-Jul-22	8.142	524.70	23.32
2	8-Jun-22	6-Jul-22	8.150	515.25	22.90
3	8-Jun-22	6-Jul-22	8.166	514.13	22.85

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Size of Cubes	150mm x 150mm x 150mm
Cross Sectional Area	22500 mm^2
Test Method	IS: 269:2015
Grade of Concrete	M - 20
Compressive Strength	7th Day

Sl. No.	Date of Casting	Date of Tesing	Weight of Cube (Kg)	Failure Load (KN)	Compressive Strength (N/mm2)
1	8-Jun-22	15-Jun-22	8.129	338.18	15.03
2	8-Jun-22	15-Jun-22	8.160	334.58	14.87
3	8-Jun-22	15-Jun-22	8.157	333.68	14.83

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Sample ID	Concrete Cube
Size of Cubes	150mm x 150mm x 150mm
Cross Sectional Area	22500 mm^2
Test Method	IS: 269:2015
Grade of Concrete	M - 20
Compressive Strength	28th Day

Sl. No.	Date of Casting	Date of Tesing	Weight of Cube (Kg)	Failure Load (KN)	Compressive Strength (N/mm2)
1	8-Jun-22	6-Jul-22	8.167	514.80	22.88
2	8-Jun-22	6-Jul-22	8.153	510.08	22.67
3	8-Jun-22	6-Jul-22	8.150	513.68	22.83

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Sample ID	Concrete Cube
Size of Cubes	150mm x 150mm x 150mm
Cross Sectional Area	22500 mm^2
Test Method	IS: 269:2015
Grade of Concrete	**M - 20**
Compressive Strength	**7th** Day

Sl. No.	Date of Casting	Date of Tesing	Weight of Cube (Kg)	Failure Load (KN)	Compressive Strength (N/mm2)
1	10-Jun-22	17-Jun-22	8.132	334.35	14.86
2	10-Jun-22	17-Jun-22	8.125	333.90	14.84
3	10-Jun-22	17-Jun-22	8.164	333.23	14.81

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Sample ID	Concrete Cube
Size of Cubes	150mm x 150mm x 150mm
Cross Sectional Area	22500 mm^2
Test Method	IS: 269:2015
Grade of Concrete	**M - 30**
Compressive Strength	7th Day

Sl. No.	Date of Casting	Date of Tesing	Weight of Cube (Kg)	Failure Load (KN)	Compressive Strength (N/mm2)
1	24-Jun-22	1-Jul-22	8.125	504.00	22.40
2	24-Jun-22	1-Jul-22	8.130	516.83	22.97
3	24-Jun-22	1-Jul-22	8.136	498.15	22.14

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Cross Sectional Area	22500 mm^2
Test Method	IS: 269:2015
Grade of Concrete	M - 30
Compressive Strength	28th Day

Sl. No.	Date of Casting	Date of Tesing	Weight of Cube (Kg)	Failure Load (KN)	Compressive Strength (N/mm2)
1	24-Jun-22	22-Jul-22	8.161	787.05	34.98
2	24-Jun-22	22-Jul-22	8.152	772.88	34.35
3	24-Jun-22	22-Jul-22	8.155	765.00	34.00

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Cross Sectional Area	22500 mm^2
Test Method	IS: 269:2015
Grade of Concrete	**M - 30**
Compressive Strength	**28th** Day

Sl. No.	Date of Casting	Date of Tesing	Weight of Cube (Kg)	Failure Load (KN)	Compressive Strength (N/mm2)
1	24-Jun-22	22-Jul-22	8.138	765.90	34.04
2	24-Jun-22	22-Jul-22	8.153	779.18	34.63
3	24-Jun-22	22-Jul-22	8.171	784.13	34.85

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Cross Sectional Area	22500 mm^2
Test Method	IS: 269:2015
Grade of Concrete	**M - 30**
Compressive Strength	**28th** Day

Sl. No.	Date of Casting	Date of Tesing	Weight of Cube (Kg)	Failure Load (KN)	Compressive Strength (N/mm2)
1	24-Jun-22	22-Jul-22	8.140	786.38	34.95
2	24-Jun-22	22-Jul-22	8.168	769.50	34.20
3	24-Jun-22	22-Jul-22	8.151	782.78	34.79

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Cross Sectional Area	22500 mm^2
Test Method	IS: 269:2015
Grade of Concrete	**M - 30**
Compressive Strength	**28th** Day

Sl. No.	Date of Casting	Date of Tesing	Weight of Cube (Kg)	Failure Load (KN)	Compressive Strength (N/mm2)
1	24-Jun-22	22-Jul-22	8.149	781.20	34.72
2	24-Jun-22	22-Jul-22	8.139	779.40	34.64
3	24-Jun-22	22-Jul-22	8.136	774.90	34.44

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Size of Cubes	150mm x 150mm x 150mm
Cross Sectional Area	22500 mm^2
Test Method	IS: 269:2015
Grade of Concrete	M - 30
Compressive Strength	7th Day

Sl. No.	Date of Casting	Date of Tesing	Weight of Cube (Kg)	Failure Load (KN)	Compressive Strength (N/mm2)
1	27-Jun-22	4-Jul-22	8.128	500.40	22.24
2	27-Jun-22	4-Jul-22	8.165	509.85	22.66
3	27-Jun-22	4-Jul-22	8.133	504.00	22.40

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Cross Sectional Area	22500 mm^2
Test Method	IS: 269:2015
Grade of Concrete	**M - 30**
Compressive Strength	**28th** Day

Sl. No.	Date of Casting	Date of Tesing	Weight of Cube (Kg)	Failure Load (KN)	Compressive Strength (N/mm2)
1	27-Jun-22	25-Jul-22	8.168	777.38	34.55
2	27-Jun-22	25-Jul-22	8.141	783.45	34.82
3	27-Jun-22	25-Jul-22	8.155	770.40	34.24

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1	28-Jun-22	26-Jul-22	8.176	779.40	34.64
2	28-Jun-22	26-Jul-22	8.166	765.23	34.01
3	28-Jun-22	26-Jul-22	8.137	772.65	34.34

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Cross Sectional Area	22500 mm^2
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Compressive Strength	**7th** Day

Sl. No.	Date of Casting	Date of Tesing	Weight of Cube (Kg)	Failure Load (KN)	Compressive Strength (N/mm2)
1	28-Jun-22	5-Jul-22	8.162	504.68	22.43
2	28-Jun-22	5-Jul-22	8.158	516.15	22.94
3	28-Jun-22	5-Jul-22	8.126	513.45	22.82

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Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt.27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Sample ID	Concrete Cube
Size of Cubes	150mm x 150mm x 150mm
Cross Sectional Area	22500 mm^2
Test Method	IS: 269:2015
Grade of Concrete	**M - 30**
Compressive Strength	**28th** Day

Sl. No.	Date of Casting	Date of Tesing	Weight of Cube (Kg)	Failure Load (KN)	Compressive Strength (N/mm2)
1	28-Jun-22	26-Jul-22	8.130	770.18	34.23
2	28-Jun-22	26-Jul-22	8.176	774.90	34.44
3	28-Jun-22	26-Jul-22	8.170	770.85	34.26

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For Sapience Consultants and Engineers,

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Email: sapiencebangalore@gmail.com

Project Management and Consultancy Services

Summary of Frequencies of Field and Laboratory Tests Conducted

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore.
Mix Type	Wet Mix Macadam

Sl. No.	Test Details	Quantity in m^3	Frequency of Tests	Tests Required	Tests Carried Out
1	Aggregate Impact Value	1239.76	1 Test / 200 m^3	7	7
2	Combined Flakiness and Elongation Indices		1 Test / 200 m^3	7	7
3	Aggregate Gradation		1 Test / 100 m^3	13	13
4	Atterberg Limits		1 Test / 100 m^3	13	13
5	Density of Compacted Layer		1 Test / 500 m^2	3	3

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Assistant Engineer

Contractor / Agency

Assistant Executive Engineer

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Aggregate Impact Value

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore.
Mix Type	Wet Mix Macadam
Material	Coarse Aggregates
Test Method	IS : 2386 (Part - IV) 1963
Source / Location	Plant
Sample No.	1
Date	02.06.2022

Sl. No.	Details	Test No. 1	Test No. 2	Average Aggregate Impact Value
1	Weight of Empty Cylinder (in gms) W1	1967	1967	
2	Weight of cylinder filled with sample (in gms) W2	2473	2490	
3	Weight of Sample (in gms) = (W2 - W1) W3	506	523	
4	Weight of Sample passing through 2.36mm IS sieve after impact (in gms) W4	108	109	21.00%
5	Weight of Sample retained in 2.36mm IS sieve after impact (in gms) W5	398	414	
6	Aggregate Impact Value in Percentage	21.00%	21.00%	

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Comments:

→ Maximum allowable Aggregate Impact value for Bituminous Concrete is 30% (MORTH table no.500.16)

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Aggregate Particle Shape

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore.
Mix Type	Wet Mix Macadam
Material	Coarse Aggregates
Test Method	IS 2386(Part I) 1963 (RA 2011)
Source / Location	Plant
Sample No.	1,2 & 3
Date	03.06.2022

Sl. No.	Test	1	2	3	*Requirements as per MORTH 5th edition table no 500.16*
1	Flakiness Index	12.00	14.50	14.20	Maximum allowable Combined Flakiness and Elongation Indices for Dense Graded Bituminous Macadam is 35% as per Table 500.8 MORTH Specification.
2	Elongation Index	14.10	12.60	12.30	
3	Combined Flakiness & Elongation index	26.10	27.10	26.50	

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Aggregate Gradation

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore.

Mix Type	Wet Mix Macadam
Material	Coarse Aggregates
Test Method	IS 2386(Part 1) 1963 (RA 2011)
Source / Location	Plant
Sample No.	7 & 8
Date	07.06.2022

Total Weight of Sample (gms) : **15000.00**

Sieve Size (mm)	Weight Retained in gms	Cumulative Weight Retained (gm)	Cummulative % Retained	Cumulative % Passing	Requirement as per MORTH table 500.17	Remarks
53	0	0	0	100	100	Gradation satisfies the MORTH Table 400-13 Specification for Wet Mix Macadam
45	409.4	409.4	2.73	97.27	95 - 100	
22.4	4384.8	4794.2	31.96	68.04	60 - 80	
11.2	2446.5	7240.7	48.27	51.73	40 - 60	
4.75	2765.9	10006.6	66.71	33.29	25 - 40	
2.36	1435.7	11442.3	76.28	23.72	15 - 30	
0.60	1494.6	12936.9	86.25	13.75	8 - 22	
0.075	1909.8	14846.7	98.98	1.02	0 - 5	

Total Weight of Sample (gms) : **15000.00**

Sieve Size (mm)	Weight Retained in gms	Cumulative Weight Retained (gm)	Cummulative % Retained	Cumulative % Passing	Requirement as per MORTH table 500.17	Remarks
53	0	0	0	100	100	Gradation satisfies the MORTH Table 400-13 Specification for Wet Mix Macadam
45	332.9	332.9	2.22	97.78	95 - 100	
22.4	4120.6	4453.5	29.69	70.31	60 - 80	
11.2	3153.7	7607.2	50.71	49.29	40 - 60	
4.75	2047.4	9654.6	64.36	35.64	25 - 40	
2.36	1645.9	11300.5	75.34	24.66	15 - 30	
0.60	1361.0	12661.5	84.41	15.59	8 - 22	
0.075	2034.4	14695.9	97.97	2.03	0 - 5	

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Aggregate Gradation

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore.
Mix Type	Wet Mix Macadam
Material	Coarse Aggregates
Test Method	IS 2386(Part 1) 1963 (RA 2011)
Source / Location	Plant
Sample No.	11 & 12
Date	08.06.2022

Total Weight of Sample (gms) : **15000.00**

Sieve Size (mm)	Weight Retained in gms	Cumulative Weight Retained (gm)	Cummulative % Retained	Cumulative % Passing	Requirement as per MORTH table 500.17	Remarks
53	0	0	0	100	100	Gradation satisfies the MORTH Table 400-13 Specification for Wet Mix Macadam
45	558.3	558.3	3.72	96.28	95 - 100	
22.4	4320.5	4878.8	32.53	67.47	60 - 80	
11.2	2864.5	7743.3	51.62	48.38	40 - 60	
4.75	2581.7	10325.0	68.83	31.17	25 - 40	
2.36	1242.9	11567.9	77.12	22.88	15 - 30	
0.60	1241.1	12809.0	85.39	14.61	8 - 22	
0.075	2028.4	14837.4	98.92	1.08	0 - 5	

Total Weight of Sample (gms) : **15000.00**

Sieve Size (mm)	Weight Retained in gms	Cumulative Weight Retained (gm)	Cummulative % Retained	Cumulative % Passing	Requirement as per MORTH table 500.17	Remarks
53	0	0	0	100	100	Gradation satisfies the MORTH Table 400-13 Specification for Wet Mix Macadam
45	407.6	407.6	2.72	97.28	95 - 100	
22.4	4565.0	4972.6	33.15	66.85	60 - 80	
11.2	3049.0	8021.6	53.48	46.52	40 - 60	
4.75	2289.7	10311.3	68.74	31.26	25 - 40	
2.36	1425.9	11737.2	78.25	21.75	15 - 30	
0.60	978.3	12715.5	84.77	15.23	8 - 22	
0.075	1859.1	14574.6	97.16	2.84	0 - 5	

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For Sapience Consultants and Engineers,

Authorized Signature

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Atterberg Limits

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore.
Mix Type	Wet Mix Macadam
Material	Coarse Aggregates
Test Method	IS 2720(Part 5):1985
Source / Location	Plant
Sample No.	4, 5 and 6
Date	06.06.2022 to 07.06.2022

Sl. No	Description	Test #4	Test #5	Test #6	IS Specifications
1	Liquid Limit, %	21.83	22.79	22.05	-
2	Plasticity Index, %	Non Plastic	Non Plastic	Non Plastic	6.0% Maximum.

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Atterberg Limits

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Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore.
Mix Type	Wet Mix Macadam
Material	Coarse Aggregates
Test Method	IS 2720(Part 5):1985
Source / Location	Plant
Sample No.	13, 14 and 15
Date	07.06.2022 to 08.06.2022

Sl. No	Description	Test #13	Test #14	Test #15	IS Specifications
1	Liquid Limit, %	22.76	21.81	21.31	-
2	Plasticity Index, %	Non Plastic	Non Plastic	Non Plastic	6.0% Maximum.

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Test Report on Compressive Strength of Concrete Cubes

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt.27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Sample ID	Concrete Cube
Size of Cubes	150mm x 150mm x 150mm
Cross Sectional Area	22500 mm^2
Test Method	IS: 269:2015
Grade of Concrete	**M - 30**
Compressive Strength	**28th** Day

Sl. No.	Date of Casting	Date of Tesing	Weight of Cube (Kg)	Failure Load (KN)	Compressive Strength (N/mm2)
1	27-Jun-22	25-Jul-22	8.161	768.83	34.17
2	27-Jun-22	25-Jul-22	8.166	767.25	34.10
3	27-Jun-22	25-Jul-22	8.168	766.35	34.06

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Test Report on Compressive Strength of Concrete Cubes

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt.27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Sample ID	Concrete Cube
Size of Cubes	150mm x 150mm x 150mm
Cross Sectional Area	22500 mm^2
Test Method	IS: 269:2015
Grade of Concrete	**M - 30**
Compressive Strength	**7th** Day

Sl. No.	Date of Casting	Date of Tesing	Weight of Cube (Kg)	Failure Load (KN)	Compressive Strength (N/mm2)
1	27-Jun-22	4-Jul-22	8.167	499.73	22.21
2	27-Jun-22	4-Jul-22	8.127	510.53	22.69
3	27-Jun-22	4-Jul-22	8.143	517.05	22.98

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Test Report on Compressive Strength of Concrete Cubes

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt.27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Sample ID	Concrete Cube
Size of Cubes	150mm x 150mm x 150mm
Cross Sectional Area	22500 mm^2
Test Method	IS: 269:2015
Grade of Concrete	**M - 30**
Compressive Strength	**28th** Day

Sl. No.	Date of Casting	Date of Tesing	Weight of Cube (Kg)	Failure Load (KN)	Compressive Strength (N/mm2)
1	27-Jun-22	25-Jul-22	8.146	781.20	34.72
2	27-Jun-22	25-Jul-22	8.132	771.53	34.29
3	27-Jun-22	25-Jul-22	8.142	772.43	34.33

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Test Report on Compressive Strength of Concrete Cubes

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt.27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Sample ID	Concrete Cube
Size of Cubes	150mm x 150mm x 150mm
Cross Sectional Area	22500 mm^2
Test Method	IS: 269:2015
Grade of Concrete	**M - 30**
Compressive Strength	**7th** Day

Sl. No.	Date of Casting	Date of Tesing	Weight of Cube (Kg)	Failure Load (KN)	Compressive Strength (N/mm2)
1	27-Jun-22	4-Jul-22	8.128	500.40	22.24
2	27-Jun-22	4-Jul-22	8.165	509.85	22.66
3	27-Jun-22	4-Jul-22	8.133	504.00	22.40

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For Sapience Consultants and Engineers,

SAPIENCE CONSULTANTS & ENGINEERS Bangalore-59

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Test Report on Compressive Strength of Concrete Cubes

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt.27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Sample ID	Concrete Cube
Size of Cubes	150mm x 150mm x 150mm
Cross Sectional Area	22500 mm^2
Test Method	IS: 269:2015
Grade of Concrete	**M - 30**
Compressive Strength	**28th** Day

Sl. No.	Date of Casting	Date of Tesing	Weight of Cube (Kg)	Failure Load (KN)	Compressive Strength (N/mm2)
1	27-Jun-22	25-Jul-22	8.159	782.55	34.78
2	27-Jun-22	25-Jul-22	8.158	774.68	34.43
3	27-Jun-22	25-Jul-22	8.176	780.30	34.68

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For Sapience Consultants and Engineers,

SAPIENCE CONSULTANTS & ENGINEERS Bangalore-59

Authorized Signature

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#B9-003, GANGA, Jnanabharathi Enclave,
Valagerahalli, Mysore Road, Bangalore 560059
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Sample ID	Concrete Cube
Size of Cubes	150mm x 150mm x 150mm
Cross Sectional Area	22500 mm^2
Test Method	IS: 269:2015
Grade of Concrete	**M - 30**
Compressive Strength	**7**th Day

Sl. No.	Date of Casting	Date of Tesing	Weight of Cube (Kg)	Failure Load (KN)	Compressive Strength (N/mm2)
1	27-Jun-22	4-Jul-22	8.139	510.75	22.70
2	27-Jun-22	4-Jul-22	8.141	506.70	22.52
3	27-Jun-22	4-Jul-22	8.164	513.90	22.84

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Test Method	IS: 269:2015
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Compressive Strength	**28th** Day

Sl. No.	Date of Casting	Date of Tesing	Weight of Cube (Kg)	Failure Load (KN)	Compressive Strength (N/mm2)
1	27-Jun-22	25-Jul-22	8.172	772.88	34.35
2	27-Jun-22	25-Jul-22	8.140	776.25	34.50
3	27-Jun-22	25-Jul-22	8.133	785.25	34.90

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Sl. No.	Date of Casting	Date of Tesing	Weight of Cube (Kg)	Failure Load (KN)	Compressive Strength (N/mm2)
1	27-Jun-22	4-Jul-22	8.160	512.55	22.78
2	27-Jun-22	4-Jul-22	8.129	506.48	22.51
3	27-Jun-22	4-Jul-22	8.144	502.43	22.33

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Cross Sectional Area	22500 mm^2
Test Method	IS: 269:2015
Grade of Concrete	**M - 30**
Compressive Strength	**28th** Day

Sl. No.	Date of Casting	Date of Tesing	Weight of Cube (Kg)	Failure Load (KN)	Compressive Strength (N/mm2)
1	27-Jun-22	25-Jul-22	8.168	777.38	34.55
2	27-Jun-22	25-Jul-22	8.141	783.45	34.82
3	27-Jun-22	25-Jul-22	8.155	770.40	34.24

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Cross Sectional Area	22500 mm^2
Test Method	IS: 269:2015
Grade of Concrete	**M - 30**
Compressive Strength	**7th** Day

Sl. No.	Date of Casting	Date of Tesing	Weight of Cube (Kg)	Failure Load (KN)	Compressive Strength (N/mm2)
1	27-Jun-22	4-Jul-22	8.128	510.98	22.71
2	27-Jun-22	4-Jul-22	8.169	510.75	22.70
3	27-Jun-22	4-Jul-22	8.138	512.10	22.76

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Compressive Strength	**28th** Day

Sl. No.	Date of Casting	Date of Tesing	Weight of Cube (Kg)	Failure Load (KN)	Compressive Strength (N/mm2)
1	27-Jun-22	25-Jul-22	8.173	766.13	34.05
2	27-Jun-22	25-Jul-22	8.143	772.65	34.34
3	27-Jun-22	25-Jul-22	8.135	765.90	34.04

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Cross Sectional Area	22500 mm^2
Test Method	IS: 269:2015
Grade of Concrete	**M - 30**
Compressive Strength	**7th** Day

Sl. No.	Date of Casting	Date of Tesing	Weight of Cube (Kg)	Failure Load (KN)	Compressive Strength (N/mm2)
1	28-Jun-22	5-Jul-22	8.133	497.48	22.11
2	28-Jun-22	5-Jul-22	8.127	499.05	22.18
3	28-Jun-22	5-Jul-22	8.163	518.85	23.06

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Compressive Strength	**28th** Day

Sl. No.	Date of Casting	Date of Tesing	Weight of Cube (Kg)	Failure Load (KN)	Compressive Strength (N/mm2)
1	28-Jun-22	26-Jul-22	8.176	779.40	34.64
2	28-Jun-22	26-Jul-22	8.166	765.23	34.01
3	28-Jun-22	26-Jul-22	8.137	772.65	34.34

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Sl. No.	Date of Casting	Date of Tesing	Weight of Cube (Kg)	Failure Load (KN)	Compressive Strength (N/mm2)
1	28-Jun-22	5-Jul-22	8.168	509.85	22.66
2	28-Jun-22	5-Jul-22	8.129	502.88	22.35
3	28-Jun-22	5-Jul-22	8.167	516.15	22.94

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1	28-Jun-22	26-Jul-22	8.166	771.75	34.30
2	28-Jun-22	26-Jul-22	8.166	785.25	34.90
3	28-Jun-22	26-Jul-22	8.170	784.13	34.85

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3	28-Jun-22	5-Jul-22	8.126	513.45	22.82

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2	28-Jun-22	5-Jul-22	8.149	507.60	22.56
3	28-Jun-22	5-Jul-22	8.125	504.23	22.41

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Test Report on Compressive Strength of Concrete Cubes

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt.27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Sample ID	Concrete Cube
Size of Cubes	150mm x 150mm x 150mm
Cross Sectional Area	22500 mm^2
Test Method	IS: 269:2015
Grade of Concrete	**M - 30**
Compressive Strength	**28th** Day

Sl. No.	Date of Casting	Date of Tesing	Weight of Cube (Kg)	Failure Load (KN)	Compressive Strength (N/mm2)
1	28-Jun-22	26-Jul-22	8.130	770.18	34.23
2	28-Jun-22	26-Jul-22	8.176	774.90	34.44
3	28-Jun-22	26-Jul-22	8.170	770.85	34.26

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For Sapience Consultants and Engineers,

Authorized Signature

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#B9-003, GANGA, Jnanabharathi Enclave,
Valagerahalli, Mysore Road, Bangalore 560059
Ph: 9448853634, 8762194386.
Email: sapiencebangalore@gmail.com

Project Management and Consultancy Services

Summary of Frequencies of Field and Laboratory Tests Conducted

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore.
Mix Type	Granular Sub Base

Sl. No.	Test Details	Quantity in m^3	Frequency of Tests	Tests Required	Tests Carried Out
3	Aggregate Gradation	471.28	1 Test / 100 m^3	5	5
4	Atterberg Limits		1 Test / 100 m^3	5	5

Sapience Consultants and Engineers,

Assistant Engineer

Contractor / Agency

Assistant Executive Engineer

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Atterberg Limits

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Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Mix Type	Granular Sub Base
Material	Coarse Aggregates
Test Method	IS 2720(Part 5):1985
Source / Location	Plant
Sample No.	1, 2 and 3
Date	08.06.2022 to 09.06.2022

Sl. No	Description	Test #1	Test #2	Test #3	IS Specifications
1	Liquid Limit, %	22.57	21.94	22.75	-
2	Plasticity Index, %	Non Plastic	Non Plastic	Non Plastic	6.0% Maximum.

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Atterberg Limits

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Mix Type	Granular Sub Base
Material	Coarse Aggregates
Test Method	IS 2720(Part 5):1985
Source / Location	Plant
Sample No.	1, 2 and 3
Date	09.06.2022 to 10.06.2022

Sl. No	Description	Test #4	Test #5	Test #6	IS Specifications
1	Liquid Limit, %	21.32	22.66	22.85	-
2	Plasticity Index, %	Non Plastic	Non Plastic	Non Plastic	6.0% Maximum.

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For Sapience Consultants and Engineers,

SAPIENCE CONSULTANTS & ENGINEERS * Bangalore-591

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GRADATION FOR GSB (Grading V)

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Mix Type	Granular Sub Base
Material	Coarse Aggregates
Test Method	IS 2386(Part 1) 1963 (RA 2011)
Source / Location	Plant
Sample No.	1 & 2
Date	08.06.2022 to 09.06.2022

Total Weight of Sample (gms) : **20000.00**

Sieve Size (mm)	Weight Retained in gms	Cumulative Weight Retained (gm)	Cummulative % Retained	Cumulative % Passing	Requirement as per MORTH table 500.17	Remarks
75	0	0	0	100	100	*Gradation satisfies the MORTH 5th Revision Table 400-1 Specification for Granular Sub Base*
53	2515.6	2515.6	12.58	87.42	80 - 100	
26.5	2173.4	4689.0	23.45	76.55	55 - 90	
9.5	5360.7	10049.7	50.25	49.75	35 - 65	
4.75	1909.9	11959.6	59.80	40.2	25 - 50	
2.36	5598.8	17558.4	87.79	12.21	10 - 20	
0.850	953.6	18512.0	92.56	7.44	2 - 10	
0.425	1158.0	19670.0	98.35	1.65	0 - 5	

Total Weight of Sample (gms) : **20000.00**

Sieve Size (mm)	Weight Retained in gms	Cumulative Weight Retained (gm)	Cummulative % Retained	Cumulative % Passing	Requirement as per MORTH table 500.17	Remarks
75	0	0	0	100	100	Gradation satisfies the MORTH 5th Revision Table 400-1 Specification for Granular Sub Base
53	2068.3	2068.3	10.34	89.66	80 - 100	
26.5	3317.1	5385.4	26.93	73.07	55 - 90	
9.5	5009.3	10394.7	51.97	48.03	35 - 65	
4.75	1323.4	11718.1	58.59	41.41	25 - 50	
2.36	5691.6	17409.7	87.05	12.95	10 - 20	
0.850	1775.3	19185.0	95.93	4.07	2 - 10	
0.425	460.7	19645.7	98.23	1.77	0 - 5	

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For Sapience Consultants and Engineers,

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GRADATION FOR GSB (Grading V)

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Mix Type	Granular Sub Base
Material	Coarse Aggregates
Test Method	IS 2386(Part 1) 1963 (RA 2011)
Source / Location	Plant
Sample No.	3 & 4
Date	08.06.2022 to 09.06.2022

Total Weight of Sample (gms) : **20000.00**

Sieve Size (mm)	Weight Retained in gms	Cumulative Weight Retained (gm)	Cummulative % Retained	Cumulative % Passing	Requirement as per MORTH table 500.17	Remarks
75	0	0	0	100	100	Gradation satisfies the MORTH 5th Revision Table 400-1 Specification for Granular Sub Base
53	1744.4	1744.4	8.72	91.28	80 - 100	
26.5	4011.3	5755.7	28.78	71.22	55 - 90	
9.5	4913.7	10669.4	53.35	46.65	35 - 65	
4.75	1305.1	11974.5	59.87	40.13	25 - 50	
2.36	5476.7	17451.2	87.26	12.74	10 - 20	
0.850	964.9	18416.1	92.08	7.92	2 - 10	
0.425	1346.4	19762.5	98.81	1.19	0 - 5	

Total Weight of Sample (gms) : **20000.00**

Sieve Size (mm)	Weight Retained in gms	Cumulative Weight Retained (gm)	Cummulative % Retained	Cumulative % Passing	Requirement as per MORTH table 500.17	Remarks
75	0	0	0	100	100	Gradation satisfies the MORTH 5th Revision Table 400-1 Specification for Granular Sub Base
53	2490.5	2490.5	12.45	87.55	80 - 100	
26.5	2126.7	4617.2	23.09	76.91	55 - 90	
9.5	5540.1	10157.3	50.79	49.21	35 - 65	
4.75	1265.0	11422.3	57.11	42.89	25 - 50	
2.36	6054.3	17476.6	87.38	12.62	10 - 20	
0.850	1510.4	18987.0	94.94	5.06	2 - 10	
0.425	603.9	19590.9	97.95	2.05	0 - 5	

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GRADATION FOR GSB (Grading V)

Project Name	Restoration and Improvements of roads and drains in A Y R Layout, Shettyhalli village,RR layout of Chikkasandra village and Abigere village roads, BTS Village, Vishveshwariah village, Royal Enclave and Sidedahalli Old Village roads Dugged by BWSSB to lay water Supply and UGD lines under 110 villages in ward No 12 & 14 Shettyhalli. BBMP, Bangalore
Client	Executive Engineer, Dasarahalli Division, BBMP, Bangalore.
Job No.:	SCE/PMC/QCR-2/BBMP/DH/2022-23/57 Dt. 27/07/2022
Contractor / Agency	Sri.Chikkaboregowda Karigowda(CKG Constructions Privite Limited), Contractor, Mysore
Mix Type	Granular Sub Base
Material	Coarse Aggregates
Test Method	IS 2386(Part 1) 1963 (RA 2011)
Source / Location	Plant
Sample No.	5 & 6
Date	09.06.2022 to 10.06.2022

Total Weight of Sample (gms) : **20000.00**

Sieve Size (mm)	Weight Retained in gms	Cumulative Weight Retained (gm)	Cummulative % Retained	Cumulative % Passing	Requirement as per MORTH table 500.17	Remarks
75	0	0	0	100	100	Gradation satisfies the MORTH 5th Revision Table 400-1 Specification for Granular Sub Base
53	1949.5	1949.5	9.75	90.25	80 - 100	
26.5	2655.9	4605.4	23.03	76.97	55 - 90	
9.5	5298.1	9903.5	49.52	50.48	35 - 65	
4.75	2368.9	12272.4	61.36	38.64	25 - 50	
2.36	5301.3	17573.7	87.87	12.13	10 - 20	
0.850	1567.9	19141.6	95.71	4.29	2 - 10	
0.425	110.9	19252.5	96.26	3.74	0 - 5	

Total Weight of Sample (gms) : **20000.00**

Sieve Size (mm)	Weight Retained in gms	Cumulative Weight Retained (gm)	Cummulative % Retained	Cumulative % Passing	Requirement as per MORTH table 500.17	Remarks
75	0	0	0	100	100	Gradation satisfies the MORTH 5th Revision Table 400-1 Specification for Granular Sub Base
53	2550.0	2550.0	12.75	87.25	80 - 100	
26.5	2025.0	4575.0	22.88	77.12	55 - 90	
9.5	5728.9	10303.9	51.52	48.48	35 - 65	
4.75	1705.9	12009.8	60.05	39.95	25 - 50	
2.36	5485.6	17495.4	87.48	12.52	10 - 20	
0.850	915.4	18410.8	92.05	7.95	2 - 10	
0.425	1262.5	19673.3	98.37	1.63	0 - 5	

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